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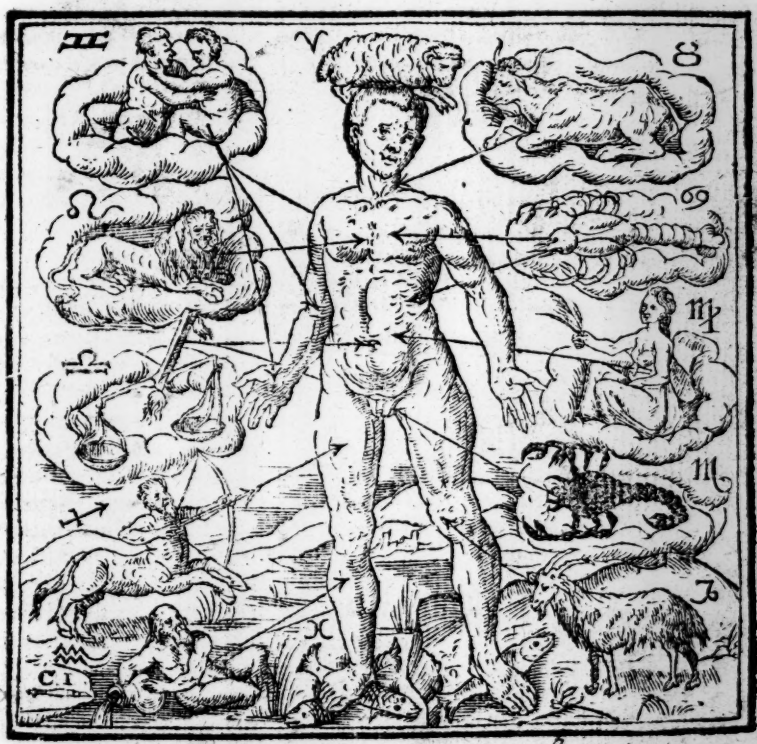
A Prognostication euerlasting of right good *effect, fruitfully augmented by the Author, contayning* plaine, briefe, pleasant, chosen rules to iudge the weather by the Sunne, *Moone, Starres, Comets, Rainbow, Thunder, Clowdes, with other extra*-ordinary tokens, not omitting the Aspects of Planets, with a briefe iudgement for euer, of Plentie, Lacke, Sickne, Dearth, Warres, &c. opening also many naturall causes worthie to be knowne.

To these and other now at the last, are ioyned diuers generall pleasant Tables, with many compendious Rules, easie to be had in memorie, manifold wayes profitable to all men of vnderstanding. Published by Leonard Digges Gentleman. Lately corrected and augmented by Thomas Digges his sonne.



Imprinted at London by the Widow Orwin. 1596.

BRITISH MUSEUM
PRÆMIUM

To the Honorable Sir Edward Fines, Earle of Lincolne, Baron of Clinton and Say, Knight of the noble order of the Garter, Lord high Admirall of England, Ireland, and Wales, and the Dominions and Iles thereof, of the towne of Calice, and Marches of the ſame, Normandie, Gaſcoigne and Guian, and Captaine generall of the Queenes Maieſties Seas and Nauie royall.

RIght Honourable, hauing of long time ſundrie waies found your Lordſhips great fauour, not only toward my father in his life time, but alſo toward his, moſt bountifully continued ſithence his death: I haue carefully thought which way I might ſome way yeeld a teſtimonie of a gratefull mind. And peruſing of late a Booke of my fathers to your Lordſhip dedicate, by negligence, or ignorance of Correctors many wayes depraued: I determined both to amend the faults, and with ſome additions to amplifie the ſame, briefly alſo to touch and diſcouer certaine errours touching matters of Nauigation, transferred into our language. And although I haue in a peculiar volume for that purpoſe prepared to entreat at large, deliuering new Rules and Methods, hitherto in no Language publiſhed, nor to my knowledge of any forraine Nation practiſed, not onely in demonſtration void of all error, but alſo in practiſe feazible: Yet in the meane, leaſt further boldnes by ignorance ſhould encreaſe, to deriue vs mo erros from other nations, whereof our Seamen haue learned too many alreadie: I thought good at the end of this booke to note ſome of the moſt vſed & eſteemed, and among that faction held for Oracles, whereby indeede they haue been and are (in all nauigations) ſo miſled, that were they not by ſight of the coaſt, and ſoundings better directed, then by any troth in their Art, many mo veſſels ſhould daily periſh. This preſent token therefore of dutifull goodwill, I ſhall humbly deſire your Lordſhip in good part to accept, meaning hereafter (God ſparing life) to honour your Lordſhip, and profit my countrey with matters more rare. And in the meane while I humblie take my leaue.

At your Lordſhips commandement
Thomas Digges.

To the Reader.

TO auoyd (gentle Reader) the yearely care, trauailes, and paines of other, with the confusions, repugnances, and manifold errors, partly by negligence, and oft through ignorance committed: I haue againe briefly set foorth a Prognostication generall, for euer to take effect: adioyning thereto diuers profitable collections, and many pleasant cōclusions, easie of all willing ingenious to bee perceiued. Here note (Reader) whereas the eleuate Pole and Meridian should be considered, in this worke it is performed for London, because I wish this Meridian, situation or clime the exact truth of things. If any yearely practises in like matters agree not with my calculations, bee assured they are false, or at the least for other Eleuations or Meridians supputated, and therefore little seruing thy purpose. And that the late rude inuentions, and grosse deuises of some this yeare, and two yeares past published mig[illegible] of them perceiued, then filed, and to serue to some profite: I haue [illegible]posed euen now to put forth a booke named *Panauges*, well ser[illegible] th[illegible] turne, and so generally and most exactly all Europe, pleasant and [illegible]ofitable to the learned, and no small delight to all manner of me[illegible] Another booke is also alreadie come to thy hands, entituled *Tectonic*[illegible]asure vnto the Masons, Carpenters, Landmeaters, correcting their olde errors, wrongfully reckoned of them as infallible grounds, teaching faithfully, sufficiently, and very briefly, the true mensuration of all manner land, timber, stone, boord, glasse, &c. And at the end containing an Instrument Geometricall appoynted to their vse. Take in good worth these labours (louing Reader) and looke shortly for the pleasant fruits Mathematical, euen such as haue been promised by my friends, and partly by me. Neither shall my desire to profite, here stay: but intendeth further to proceed, if these seeme accepted. As the good will of Printers not had, kept the foresayd from you: so I trust the willing minde and excellencie of *Thomas Gemini* shall bring them shortly vnto you. Certes my hope is, while life remaineth, not to be vnfruitfull to this common wealth, with studie and practise.

Against

I Am diuerſly occaſioned (louing Reader) ſomewhat to write in the commendation of the Mathematicals: which neede not, but onely to open the fooliſh raſhnes, and raſh fooliſhnes of ſuch, which of late haue in writing diſpraiſed theſe goodly arts. It is an old ſayd ſawe, and true: *Scientia non habet inimicum niſi ignorantem.* But to auoyd tediouſneſſe, and chiefly for the more ſatiſfying, I referre all of that ſort, which haue talked any learning (the reſt not regarded) to the firſt part of famous Guido Bonatus de vtilitate Aſtronomiæ in communi: where he writeth *contra illos, qui dicunt quòd ſcientia Stellarũ non poteſt ſciri ab aliquo: contra illos, qui dixerunt, quòd ſcientia Stellarũ non eſt vtilis, ſed potiùs damnoſa &c. contra illos, qui contradicunt iudicijs Aſtronomiæ, & qui reprehendunt eam, neſcientes dignitatem eius, eò quòd non eſt lucratiua.* Alſo for breuitie I appoynt all nice Diuines, or (as Melanchthon termeth them) *Epicures Theologi*, to his hie commendations touching Aſtronomie, vttered in his epiſtles to Simon Grineus, to Schonerus, & to the peroration of Cardanus 5. bookes, where he sheweth how farre wide they alleadge the Scriptures againſt the Aſtronomer, which make wholly with the Aſtronomer. Melanchthon writeth and affirmeth: *Arrogantiam eſſe cum ſumma ſtultitia coniunctam, venari choragium aliquod gloriæ ex infectatione artium, quæ ſunt graui autoritate doctorum prudentium receptæ:* he calleth it *manifeſtum inſaniæ genus*, declaring *quòd magis opus habent Medicis, quàm Geometris*, aduiſing the learned not to giue eare vnto their follie. *Sinamus (ait) vnà cum Epicuro ineptire.* Which counſell lo, I follow. Now therefore, ye enemies of all good doctrine, either giue an ouerthrow and that with your pen, or let famous Guido, or learned Melanchthon ſatisfie. If neither: certes I will ſhortly (God ſparing life) take ſome paine in publiſhing the wonderfull vnknowne pleaſant profits of theſe diſpraiſed high knowledges, and by that meanes to inforce ſilence.

Vituperãt quæ ſimpliciter eas ignorant.

Now in fewe, for thy incouragement in theſe, thus I ſay and truly, the ingenious learned, and wel experienced circumſpect ſtu-

vent Mathematicall, receiueth daily in his wittie practises more pleasant ioye of minde, then all thy goods (how rich soeuer thou bee) can at any time purchase. *Id tantùm quod pulchrum est, quod purum est, quod diuinum est, nihil mortale sapiens dulci ardore amplectitur. Vt multa paucis: crede mihi, extingui dulce erit Mathematicarum artium labore.* Now to ende: that learned Guido, that excellent Guido Bonatus, sheweth what Astrologie or Astronomie is, and ought not (sayth hee) by any meane to bee reprehended, in that the most wise, yea, the holy fathers haue practised that science. Hee proueth it one of the chiefe sciences Mathematicall, by the authoritie of the best learned, and by Aristotle in his Posteriorum. How commeth it to passe (louing Reader) seeing it is a noble Science, *Et Scientia est notitia vera conclusionum, quibus propter demonstrationē firmiter assentimur*, that it is counted vaine and of so small strength: the secret trueths and most pleasant profits therein not desired, yea vtterly despised, and of some bussie biting bodies reiected as very lyes? Let no man doubt ignorance, the great enemie of all pure learning hath wrought this. *Nam incertam vocat hanc artem vulgus, propter errores, non arti, sed hominum indoctissimorum insciti, & temeritati imputandos, qui citra delectum omnia effutiunt.* Thus I leaue indigestly farther to trouble: fauour me as I tender the furtherance of good learnings, profitable to a common wealth. Fare most hartely well, vnfained good Christian Reader.

Stulti negligũt & cõtemnunt: qui contradicit ambitiosus est: qui maledicit, fatuus.

The

16 JY 60

The Contents of this Booke.

FRom the next side to the fift leafe are contayned the forme of a Quadrant, Square, Circle, Quantities, with a figure truly placing the sayd Quantities in the heauen.

From the fift to the thirteenth, ye haue the iudgement of weathers by the Sunne, Moone, Starres, Comets, Rainbow, Thunder, Clowdes, with extraordinary tokens and aspects of Planets, &c.

The 13. 14. 15. and 16. leafe, shewe the causes of such alteration according to Aristotle. First of the Rainbow, then Raine, Frost, Dew, Snow, Hayle, Windes, Earthquakes, Thunders, Lightnings, Comets, Sunne and Moone eclipsed, Quantities of the Planets, and their placing ocularly demonstrated.

The 17. the aspects of the Moone and her signification in the 12. celestiall Signes.

The 18. 19. 20. what Signe the Moone is in and shall bee for euer, the meete time to let bloud, to purge, to bathe, to fell timber, to sow, to plant, to graffe, cut, geld, &c.

The 20. and 21. haue Tables for the Sunday letter, for the Golden number or Prime, for the Epact and moueable feasts, many wayes conducing.

The 22. 23. and 24. the age of the Moone, the change and quarters for euer are declared, the Ebbings and Flowings, the breake of the day, the Sunne rising, the length of the day and night, the Twylight for all the yeare.

The 25. 26. and 27. shew exact pleasant wayes for the day and night houre, with composition of meete instruments.

From the 29. to the 34. leafe, ye haue the peculiar Kalendar, very commodious for the day and night houre.

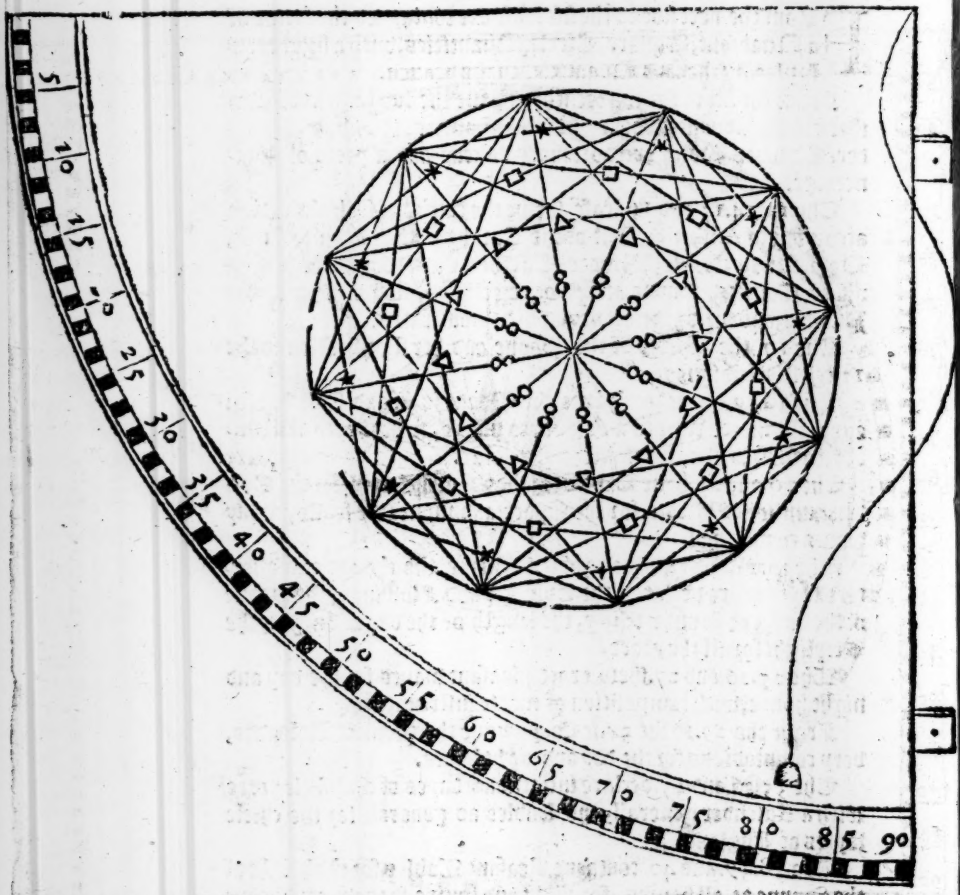
The 35. 36. and 37. declare infortunate dayes of the whole yeare with a Kalender generall, and Tables as generall for the chiefe Fayres of England.

The 38. 39. and 40. contayne pleasant Tables for the height of the Sunne at all houres, for right and squire shadow conducing also to the composition of many instruments, &c.

The 40. and 41. leafe, Collections easie to be had in memorie.

This

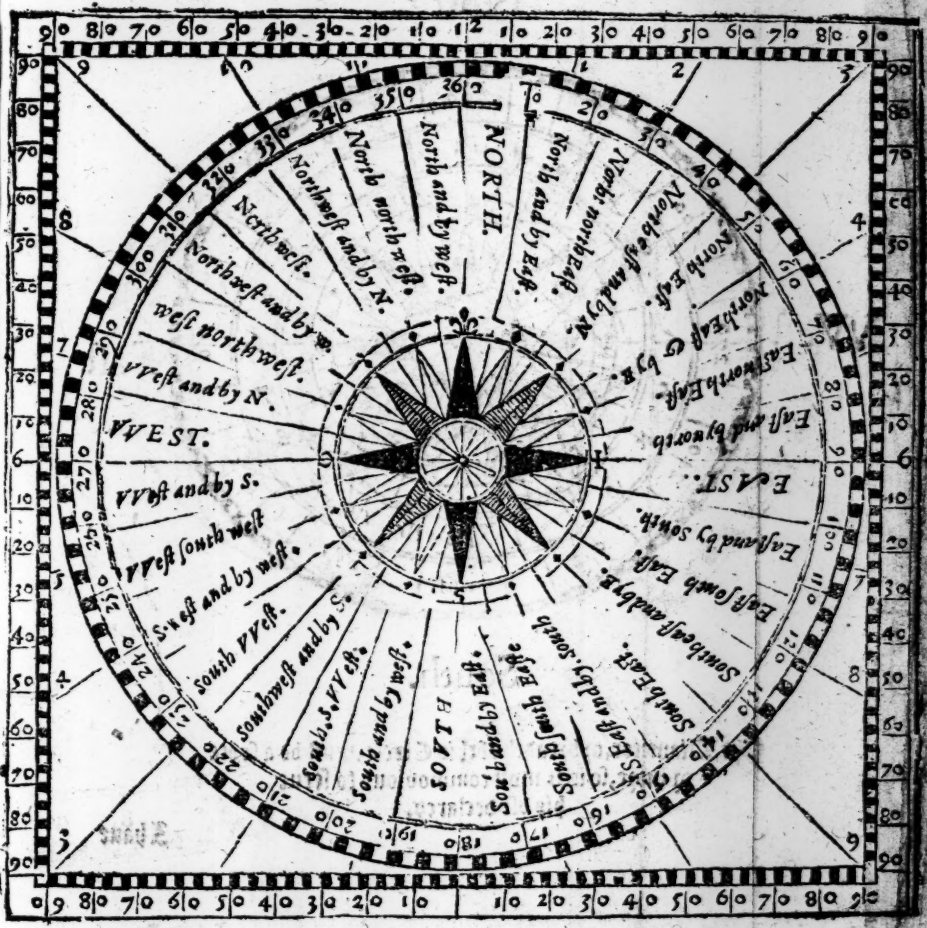
This Quadrant is appoynted here to get exactly the length of Staffe and Squire ſhadow, how vnleuell ſoeuer the grounde bee, as I haue ſufficiently inſtructed in the eight and thirtith leafe.



If ye liſt not to make a Quadrant, ye may vſe this very well: adding a plummet and line, with ſights or otherwiſe.

This

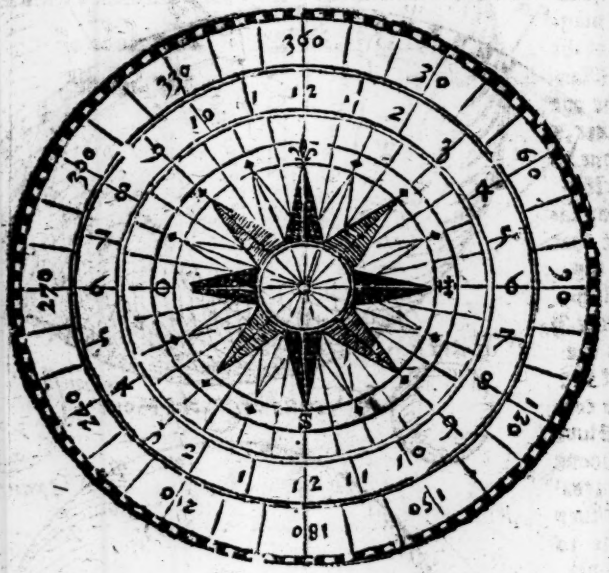
This Instrument must bee made in a plaine fine mettall plate, a foote, or more square. Then it is pleasant for the houre of the day and night, either to bee fixed about your house, or moueable if ye list, by a needle to bee placed where and when ye will. *The 26. leafe sheweth the making.*



The good Marriner may long for the vse of this Instrument: it serueth marueylously his turne.

Or thus, without the Square this Circle will serue well your purpose, being exactly made and truly placed.

North.



West

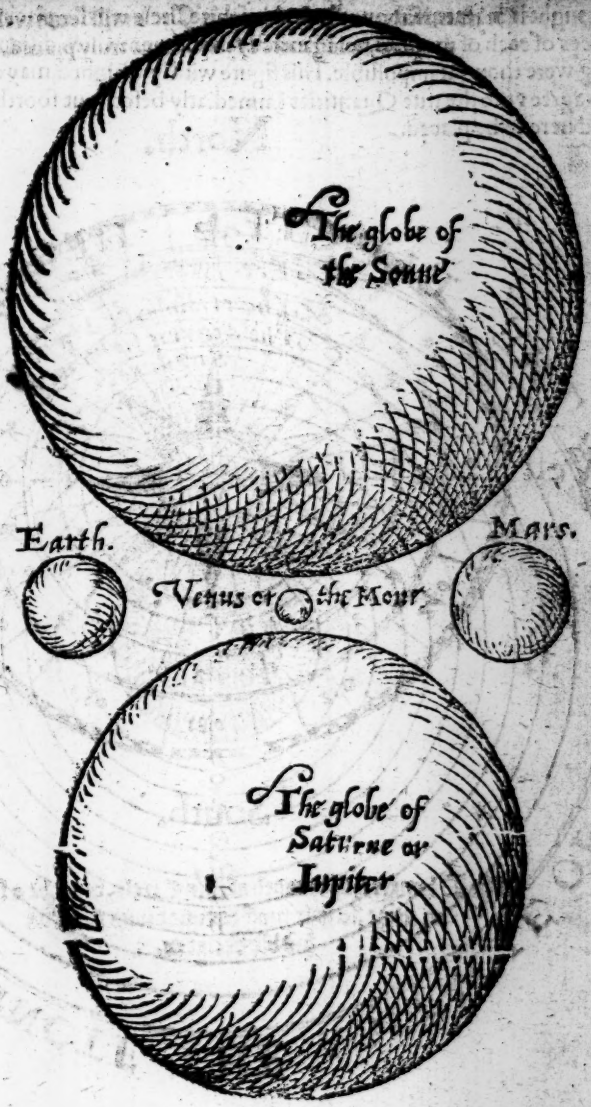
East

South.

The Diameter, or breadth of this Circle, must be a foote or more, so is it most commodious to serue his vse declared.

Haue

I haue placed readie to bee conceiued euē here at ꝑ eye, the true quantities or magnitudes of the seauen Planets, the one to the other, & euerie one to the Earth: which may satisfie thē that scorned my last publishing, where I declared the Globe of the Sun, to containe ꝑ Globe of the Moone 7000. times. I would they were able to conceiue demonstration made: then ꝑ truth more euidently appearing, would pull scorning away.



thought it meete also to put here this figure, shewing the placing, compassing, and nces of each of the foresayd Planets in the heauen: which distances, at my last pub- ng were thought impossible. This figure wittily weighed, may confirme a possibi- to agree vnto the true Quantities immediatly before put foorth, therefore not o- ted here to be placed.

How

the Sunne rising or going downe.

THe Sunne in the Horizon or rising, cléere and bright, sheweth a pleasant day: but thinly ouercast with a clowde, betokeneth foule weather. Also at the going downe, the bodie diuersly coloured or red, and about dispersed with like clowdes, the beames red, and of length, pronounce great windes, the next day from that part. Blacknesse in the Sunne or Moone, betokeneth water: Red, signifieth winde. De obseruandis meteoris.

The Element red in the euening, the next day faire: but in the morning red, winde and raine. Also the Sunne beames spotted greene, pale, or blacke, gathered to a clowd, signifieth raine. Further, the Sunne at the setting plainly secne without any clowde, declareth a faire night to ensue.

Here note, Ptolome willeth vs diligently to obserue the circle, or circles about the Sunne. If it be cléere, and the circle of no continuance, behold faire weather: If many of them, winde.

Winds more vehement are signified, if that the circles be somewhat red, here and there broken: but these obscured, thicke, and blacke, looke for cold, wind, and snow.

What is spoken of the Sunne, touching the circles, the same is ment of the Moone.

Note here that greater windes chaunce in the day, then in the night. Note.

How weather is declared by the colour of the Moone, and by the nature of the signe wherein she is.

IF the Moone in the third of her chaunge, yea, three dayes before the full, or in the middest of the quarter be found of pure light, nothing compassing her, the end direct vp, she promiseth faire weather: but bent to red colour, prouoketh winde. The Moone pale or somewhat inclined to black; obscure or thicke, threateth raine. Luna rubes vertat, pallor pluit. Alba serenat.

Also by the nature of the signe, weather may bee iudged, thus according to Steflerinus, Monteregius, Leupoldus, and famous

Guido Bonatus, with others well trauailed in the mutations of ayre.

♈ ♌ ♐ Hote.
♉ ♍ ♑ Earthie.
♊ ♎ ♒ Airie.
♋ ♏ ♓ Watrie.

COnsider the nature of the signe where the Moone is at the chaunge, quarter, and full. If she be in hote and drie signes, as Aries, Leo, Sagittarius, in winter a good token of faire weather: In Summer a great signification of immoderate heate. If in earthy, cold and drie signes, as Taurus, Virgo, and Capricornus, in winter iudge cold, frost, and snow to ensue: but in Summer temperate weather. In ayrie and windie signes, as Gemini, Libra, and Aquarius, much wind. If in watrie, cold and moyst signes, as Cancer, Scorpio and Pisces, in winter wet weather: In summer a pleasant temperature.

ALso, the Sunne in Aquarie: the Moone at the chaunge there, or in Sagittarie, or at the full in Leo, betokeneth raine. The Sunne in Pisces or Aries: the Moone in Virgo, Libra, or Sagittarie, signifieth raine, especially in watrie dwellings. The Moone in Aquarius or Pisces, looke for chaunge of weather, then chiefly the troubleth the ayre. The Moone also at the chaunge, or rather at the full, in Aries, Libra, Scorpio or Pisces, tempestuous weather followeth. The Sunne in Aquarie, in Aries, Libra, or Scorpio, but chiefly in Leone: the Moone then at the full, and that after raine or mistings, looke for lightning thunder, &c. To conclude, the Moone in Cancer, Leo, Capricornus, or Aquarius, ayded with any aspect, but chiefly with opposition or Quadrat of Venus, raine followeth.

The iudgement of weather by starres.

Cum maiora apparent tum enim Humore medius crassescit aër.

BEhold the Starres whose magnitude you know best. If they appeare of much light, in bignesse great, more blasing then they are commonly, it betokeneth great winde or moysture in that part where they shew: in winter, cold and frost. When Stars seeme to runne in the Element, it sheweth winde. Affirme also alteration of weather, if they bee fewe in number, clowdie, and of little light. Further, when dimme Starres appeare with long fierie tailes,

tailes, huge windes and great drought, the more in number, the greater effect. When Starres in the night (as it is said) shoote or seeme to fall, it argueth winde in that part. If in diuers places, inordinate windes, if in all places, then pronounce winds, thunder, lightnings, yea weather most tempestuous.

The significations of Comets.

COmets signifie corruption of the ayre. They are signes of Earthquakes, of warres, changing of kingdomes, great dearth of Corne, yea a common death of man and beast.

De Cometarũ prodigijs, lege Cardanũ lib. 4. Fol. 83. & Antonium Mizaldum de Cometographia.

Pontanus sic scribens: Ventorum quoque certa dabunt tibi signa Cometæ: illi etiam belli motus, feráque arma minantur, Magnorum & clades populorum, & funera regum, aquarum significant penuriam.

How by the Clowdes, chaunge of weather is perceiued.

IF thicke clowdes resembling flockes, or rather great heapes of woull, bee gathered in many places, they shew raine. Also when grosse, thicke, darke clowdes, right ouer the North part, or somewhat declining to the West are close with the Earth, immediatly followeth raine. If they appeare like hilles, some deale from the earth, a good token of weather ouerpassed. Black clowdes signifie raine. White clowdes appearing in winter, at the Horizon, two or three dayes together, prognosticate cold and snow.

Of the Rainbow and his effect touching alteration of ayre.

IF in the morning the Rainbow appeare, it signifieth moysture, vnlesse great drought of ayre worke the contrarie. If in the euening it shew it selfe, faire weather ensueth, so that abundant moyst ayre take not away the effect.

Arcus nisi sole aduerso non fiunt.

Orthus.

THe Rainbow appearing, if it be faire, it betokeneth faire weather: if foule, looke for faire weather. The greener, the more raine: redder, winde.

Non apparet nisi cum vapores rarificantur vel impelliantur

Of

Of Thunders what they signifie.

THunders in the morning, signifie wind: about noone, raine: In the euening great tempest. Some write (their ground I see not) that Sundayes thunder, should bring the death of learned men, Iudges and others.

Signum futurorum bellorū.

Mondayes thunder, the death of women.

Tuesdayes thunder, plentie of graine.

Wednesdayes thunder, the death of harlots, & other bloodshed.

Thursdayes thunder, plentie of sheepe and corne.

Fridayes thunder, the slaughter of a great man, and other horrible murthers.

Saturdayes thunder, a generall pestilent plague & great death.

How weather is knowne after the change of euery Moone by the prime day.

Common tokens of weather meete for all manner of wits.

SVnday Prime, drie weather, Monday Prime, moyst weather. Tuesday Prime, cold and windie. Wednesday Prime, wonderfull. Thursday Prime, faire and cleere. Friday Prime, mixt weather. Saterday Prime, moyst weather.

Now ensue extraordinarie tokens for the knowledge of weather.

SOme haue obserued euill weather to followe, when as watrie fowles leaue the sea, desiring land: the fowles of the lande flying high: the crying of fowles about waters making a great noise with their wings: also the seas swelling with vnaccustomed waues: If beasts eate greedily: If they licke their houes: If they sodainly moue here and there making a noyse, breathing vp to the ayre with open nostrels: raine followeth. And the busie heaping of Moules: the appearing or comming out of wormes: Hennes resorting to the perch or roust couered with dust, declare raine. The ample working of the Spinner in the ayre: the Ant busied with her egges: the Bees in faire weather not farre wandring: the continuall prating of the Crow, chiefly twise or thrise quicke calling, shew tempest. When the Crow or Raucn gapeth against the Sunne in summer, heate followeth. If they bustle themselues

in

in proyning or washing, and that in winter, look for raine. The vnaccustomed noise of poultry, the noise of swine, of peacocks, declare the same. The swallow flying and beating the water, the chirping of the Sparrow in the morning signifie raine. Raine suddenly dyed vp. Woody courrings straighter then of custome. Bels heard further then commonly, the wallowing of dogges, the alteration of the Cocke crowing, all declare rainie weather. I leaue these, wanting the good ground of the rest. If the learned be desirefull of the aforesaid, let them reade graue Virgill, Primo Georgicorum. At Bor. &c.

There be a multitude of other not extraordinary, but of the best knowne causes: many for breuitie here omitted, the most part not mentioned, because they passe the capacitie of the common sort, vpon all the which the Astronomer doth well and learnedly conclude. I doubt not, there be also sometime vnknown matters, mitigating the aforelayd, or prouoking tempest vnlooked for, which neither experience, ne learning hath established. How vnkind (these considered) yea how farre from worthie thankes giuing are they, which in generall headdely do blame, checking bitterly the Astrologer, with these Iudiciarie matters (the least part among a number of his most certaine doings) when things fortune contrary to expectation? Vnderstand gentle Reader, the consent of a multitude famously learned in their buckler, euen in these matters Iudiciarie: who haue wayed a long time prudentlie, the great strength, the behement force and maruellous natures of all erraticall, and celestiall constellations, with their Angles, Radiations, Aspects, Affections, Stations, Progressions, Defections, Dispositions, Applications, Preuentions, Refrenations, Contrarieties, Abscissions, Coniunctions, Quadratures, and Oppositions, &c. Therefore extreame folly, yea more then madnes doth he bitter, which imbrayeth or backbiteth these knowledges, not remembring the great and manifold benefits had through them, and that with most certaintie in all other doings.

What Peteroscoper, yea who learned in matters Astronomicall, noteth not the great effects, at the rising of the starre called the little Dogge? Truly the consent of the best learned doe agree of his force: yea Plinie, in his history of nature affirmeth the

Seas then most fierce, winds to flow in cellers, standing waters to moue, dogs enclined to madnesse, then most wood. Further, these constellations, Orion, Arcturus, Corona, rising, prouoke tempestuous weather. The Kid & Goat, winds, Hyades, or Succulie, raine. What Meteorologer consenteth not to the great alteration and mutation of ayre, at the Coniunction, Oppositiō or Quadrat aspect of Saturne, with either two lights? Who is ignorant yea meanly trauailed in Astronomie, that Iupiter with Mercurie or with the Sunne, enforceth rage of winds? What is he that perceiueth not the fearfull thunders, lightnings and raines at the meeting of Mars and Venus, or Iupiter and Mars? &c. Leaue for shame to oppugne these iudicials stronglie authorised. He that any other part carpeth, may seeme more then mad. All truth, all experience, a multitude of infallible grounded rules are against him. *Certum est omnibus, notum, quòd cœli motus, signorum ortus & occasus, planetarū aspectus, & coniunctiones luminarium Eclipses, &c. certissimā determinatam, ac infallibilem habent causam. Quis iam sanæ mentis negabit eorum effectus sæpe innotescere, vtpote bella, fames, grandines, aeris perturbationis, elementorum commotiones, terræ motus, & similia? Positis causis naturalibus, & non impeditis, sequitur effectus.*

Orionis, Arcturi, Coronæ, Capræ, Suculorū effectus.

♂ □ & ☌ ♄ cum ☉ & ☽. ♂ ♃ □ & ☌ cum ☿ aut cū ☉, &c.

The learned that listeth ingeniously to prognosticate of weather, will not onely discreetly wey all before written, but consider also with them the aspects of the Planets following, and their combustion in the 12. Signes, with the coniunction of fixed starres, mansions of the Moone, Ascendent, Climes, &c. Also the times or quarters of the yeare must bee noted diligently, (as ensueth) and iudgement accordingly pronounced.

Of the yeare diuided into foure quarters.

The Spring time is hote and moyst, and continueth so long as the Sunne is in Aries, Taurus, and Gemini, which is from the tenth of March vnto the 12. of June. The Summer is hote and dry, counted from the beginning of Cancer, to the ende of Virgo, that is from the 12. of June to the fourteenth of September. Harueſt is colde and dry, counted from the beginning of Libra to the end of Sagittarie, counted from the 14. day of September to the thirteenth of December. Winter is cold and moyst, cō-

♈ ♉ ♊ power ouer the breſt.
♋ ♌ ♍
♎ ♏ ♐ ♑ Power ouer al flumes.
♒ ♓

times

tinued from the beginning of Capricornus, to the ende of Pisces, that is, from the twelfth of December, to the tenth of March.

Here follow the aspects of the Planets, for the better iudgement of weather.

BEfore I declare of Planets and the signification of aspects, it behoueth briefly to open what I call Planets, and what aspects, and how they are charactered and figured. Vnderstand there be seauen moueable Starres pleasant to the sight called Planets: the highest Saturne ♄: then Iupiter ♃: Mars ♂: Sunne ☉: Venus ♀: Mercurie ☿: and the Moone ☾ next to the Earth.

Now when I desire to expresse Saturne, I write this figure ♄. for Iupiter this ♃. for Mars this ♂. Thus of the other as their characters declare. All Radiations or Aspects are expressed as follow. A Coniunction is thus figured ☌. and it is when another Planet is ioyned with the Sunne or Moone, or others among themselues, within one degree or lesse.

The Sextile Aspect or Radiation, is thus expressed ⚹, and it is within 60. degrees the one from the other. The Quadrate aspect thus □, 90. degrees distant. The Trine thus △, separated 120. degrees. The Oppositition thus ☍, 180. degrees the one is distant from the other.

Loe here they follow in order: the characters of the Planets and Signes also.

☌ ⚹ □ △ ☍

Coniunction, Sextile, Quadrate, Trine, Oppositition.

♄ ♃ ♂ ☉ ♀ ☿ ☽

Saturne, Iupiter, Mars, Sunne, Venus, Mercurie, Moone.

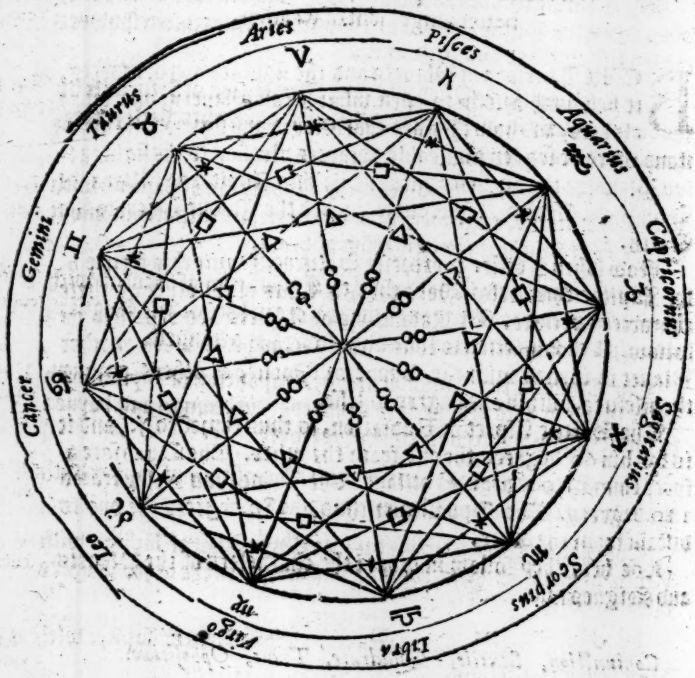
♈ ♉ ♊ ♋ ♌ ♍

Aries, Taurus, Gemini, Cancer, Leo, Virgo,

♎ ♏ ♐ ♑ ♒ ♓

Libra, Scorpius, Sagittarius, Capricornus, Aquarius, Pisces.

Yet for more plainenesse beholde this figure.



The signification of the aspects of Planets among themselues: for the iudgement of weather.

The coniunction or meeting of Saturne with Iupiter, in fierie signes, enforceth great drought. In watrie signes, floods, continuall raine, generall ouerflowings, &c. In ayrie signes, plenty of Windes.

The

The Quadrature, Sextile, or Oppolition of Saturne with Iupiter, in moyſt Signes, cauſeth troubled ayre, by Hayle, Winde, Raine, Thunder, &c. before and after. ♄ □ ✶ & ☌ cum ♃.

The Coniunction, Quadrature, or Oppolition of Saturne with Mars, in watry Signes, declare in Summer raine, often ſhowers with haile, thunder and lightning. ♄ ☌ □ & ☌ cum ♂.

The Coniunction, Quadrature, or Oppolition of Saturne with the Sunne, chiefly in cold Signes, ſhew dark weather, haile, raine, thunder and cold dayes. ♄ ☌ □ & ☌ cum ☉.

The Coniunction, Quadrature, or Oppolition of Saturne with Venus, in Winter, engender colde and raine, principally in moyſt Signes: in Summer, mittigation of heate. ♄ ☌ □ & ☌ cum ♀.

The Coniunction, Quadrature, or Oppolition of Saturne with Mercurie, in watrie Signes, bring raine: in hote or drie Signes, drought: in Summer, thunder, lightnings and tempeſt. ♄ ☌ □ & ☌ cum ☿.

The Coniunction, Quadrature, or Oppolition of Iupiter with Mars, in moyſt Signes, declare thunders, lightnings and rayne: in winter ſnow, or clowdie thicke weather. ♃ ☌ □ & ☌ cum ♂.

The Coniunction, Quadrature, or Oppolition of Iupiter with the Sunne, great and moſt vehement winds. ♃ ☌ □ & ☌ cum ☉.

The Coniunction, Quadrature, or Oppolition of Iupiter with Venus, in moyſt Signes, colde and miſtings: in the other Signes faire weather. ♃ ☌ □ & ☌ cum ♀.

The Coniunction, Quadrature, or Oppolition of Iupiter with Mercurie, great winds. ♃ ☌ □ & ☌ cum ☿.

The Coniunction, Quadrature, or Oppolition of Mars with the Sunne, in fierie Signes, drought: in watrie, thunder and raine. ♂ ☌ □ & ☌ cum ☉.

The Coniunction, Quadrature, or Oppolition of Mars with Venus, in moyſt Signes, raine, and tempeſt. ♂ ☌ □ & ☌ cum ♀.

The Coniunction, Quadrature, or Oppolition of Mars with Mercurie, in hote Signes, greate heate: in drie Signes, drought: in watrie, raine ſometimes, thunders, lightnings, with ſuddaine fierce winds. ♂ ☌ □ & ☌ cum ☿.

♀ ☌ □ & ☍ cum ☿. The Coniunction, Quadrature, or Oppolition of Venus with Mercurie, causeth raine: in Summer they prouoke tempest, the more if they agree in watrie Signes. Note what is sayd of the Coniunction, Quadrature or Oppolition, the same is also ment of the Sextile and Trine, but they are of lesse signification, so the learned noteth.

A declaration of weather by aspects of the Moone with the Planets.

☽ ☌ □ & ☍ cum ♄. The Coniunction, Quadrature, or Oppolition of the Moone with Saturne in moyst Signes, bringeth a clowdie day, colde ayre, according to the nature of the Signe: If the goe from Saturne to the Sunne, by coniunction or otherwise, harder weather ensueth.

☽ ☌ □ & ☍ cum ♃. The Coniunction, Quadrature, or Oppolition of the Moone with Iupiter in Aries or Scorpio, sheweth fayre weather, white dispersed clowdes.

☽ ☌ □ & ☍ cum ♂. The Coniunction, Quadrature, or Oppolition of the Moone with Mars in watrie Signes, raine. In hote Signes, diuers coloured clowdes are made all the Element ouer. In Summer often thunder.

☽ ☌ □ & ☍ cum ☉ The Coniunction, Quadrature, or Oppolition of the Moone with the Sunne in moyst Signes, rainie weather. The more if the Moone goe from the Sunne to Saturne.

☽ ☌ □ & ☍ cum ♀. The Coniunction, Quadrature, or Oppolition of the Moone with Venus, chiefly in moist Signes, raine followeth. The Moone going from Venus and Mars, more varietie of weather.

☽ ☌ □ & ☍ cum ☿. The Coniunction, Quadrature, or Oppolition of the Moone with Mercurie in moyst Signes, sheweth raine and winde, the more when the Moone passeth from Mercurie to Iupiter, then great winds follow.

How

How the weather is iudged by the Orientall and Occidentall ſtation of Planets, with their Combuſtion in the 12. Signes Celeſtiall.

Firſt of the Planets in Aries.

SATVRN in Aries combuſt, that is to ſay, vnder the beames of the Sunne, maketh a clowdie darke troubled ayre. Orientall, I meane in the morning appearing before the Sunne, faire weather. Occidentall, that is to ſay, ſhewing himſelfe after the Sunne going downe, betokeneth great winds. ♄ in ♈

Iupiter in Aries combuſt, a token of raine: being Occidentall, it bringeth clowdes, and dewes: Orientall, faire pleaſant weather. ♃ in ♈

Mars in Aries combuſt and Occidentall, good weather: contrarie Orientall. ♂ in ♈

Venus in Aries combuſt Occidentall, cloudineſſe, great winds: Orientall, thunders and raines. ♀ in ♈

Mercurie in Aries combuſt, tempeſt: Occidentall and Orientall, faire windie weather. ☿ in ♈

Of Planets in Taurus.

SATVRNE in Taurus combuſt and ſtationarie, bringeth thicke clowdes, thunders and troubleſome weather. ♄ in ♉

Iupiter in Taurus combuſt, indifferent weather: Occidentall, pleaſant ſhowers. ♃ in ♉

Mars in Taurus combuſt, a quiet ayre: but Orientall, windie. ♂ in ♉

Venus in Taurus combuſt, thunders, &c. Occidentall, faire. ♀ in ♉

Of

Of the Planets in Gemini.

♄ in ♊ SATVRNE in Gemini combust and Occidentall, drought.

♃ in ♊ Iupiter in Gemini combust, a good signification.

♂ in ♊ Mars in Gemini combust and Occidentall, heate.

♀ in ♊ Venus in Gemini combust and Occidentall, winde.

☿ in ♊ Mercurie in Gemini combust, winde.

Of the Planets in Cancer.

♄ in ♋ SATVRNE in Cancer combust, darke weather, great windes and troublesome weathers: Occidentall, caulmer.

♃ in ♋ Iupiter in Cancer combust, bringeth caulme and pleasant weather.

♂ in ♋ Mars in Cancer combust, great heate.

♀ in ♋ Venus in Cancer combust, a quiet caulme time.

☿ in ♋ Mercurie in Cancer combust, tempestuous weather, chiefly on the Sea: Occidentall, caulmer.

Of the Planets in Leone.

♄ in ♌ SATVRNE in Leone combust, maketh windes and mistings.

♃ in ♌ Iupiter in Leone combust, pleasant windes.

♂ in ♌ Mars in Leone combust, Occidentall, drought.

♀ in ♌ Venus in Leone combust, drought.

☿ in ♌ Mercurie in Leone combust, windes.

Of

Of the Planets in Virgo.

SATVRNE in Virgine combust, is a significatour of infirmities. ♄ in ♍

Iupiter in Virgine combust, manifesteth abundance of things. ♃ in ♍

Mars in Virgine combust, like vnto Saturne. ♂ in ♍

Venus in Virgine combust, drought: Orientall, contrarie. ♀ in ♍

Mercurie in Virgine combust, drought, raging seas: Occidentall, drought. ☿ in ♍

Of the Planets in Libra.

SATVRNE in Libra combust, sheweth infirmitie of sight: Orientall, cold windes. ♄ in ♎

Iupiter in Libra combust, indifferent weather. ♃ in ♎

Mars in Libra combust, bringeth moysture. ♂ in ♎

Venus in Libra combust, moyst ayre. ♀ in ♎

Mercurie in Libra combust, windes. ☿ in ♎

Of the Planets in Scorpione.

SATVRNE in Scorpio combust, ayre: Occidentall, frost: Orientall, cold North windes. ♄ in ♏

Iupiter in Scorpio combust, raine: Occidentall, bitter weather. ♃ in ♏

Mars in Scorpio combust, declareth moysture: Orientall, winds. ♂ in ♏

Venus in Scorpio combust, raine, both Occidentall, and Orientall. ♀ in ♏

Mercurie in Scorpio combust, raging weather, chiefly Orientall. ☿ in ♏

Of the Planets in Sagittarius.

♄ in ♐ SATVRNE in Sagittarius combust, colde rainie ayre: Orientall, cold and frost.

♃ in ♐ Iupiter in Sagittarius combust, much raine: Orientall worse weather.

♂ in ♐ Mars in Sagittarius combust, drought.

♀ in ♐ Venus in Sagittarius combust, raine: Occidentall, wind & cold.

☿ in ♐ Mercurie in Sagittarius combust, raine: Occidental, cleare aire.

Of the Planets in Capricornus.

♄ in ♑ SATVRNE in Capricornus combust, signifieth dark weather, with South winds: Occidentall, cold: Orientall, north winds.

♃ in ♑ Iupiter in Capricornus combust, moyst aire: Occidental, increasing the same.

♂ in ♑ Mars in Capricornus combust, clowdie: Occidentall, some heat.

♀ in ♑ Venus in Capricornus combust, cold ayre: Orientall, raine.

☿ in ♑ Mercurie in Capricornus combust, raine both Orientall and Occidentall.

Of the Planets in Aquarius.

♄ in ♒ SATVRNE in Aquarius combust, cold ayre: Occidentall, dangerous seas: Orientall, raine.

♃ in ♒ Iupiter in Aquarius combust, Occidentall, raine.

♂ in ♒ Mars in Aquarius combust, drought: Occidentall, & Orientall, plentie of winds.

♀ in ♒ Venus in Aquarius combust, clowdie: Occidentall, hot: Orientall, raine.

☿ in ♒ Mercurie in Aquarius combust, snow: Occidentall, more cold: Orientall, raine.

Of

Of the Planets in Pisces.

SATVRNE in Pisces combust, bringeth ebbes: Occidentall, raine. ♄ in ♓

Iupiter in Pisces combust Orientall, caulme waters. ♃ in ♓

Mars in Pisces combust Occidentall, drought: Orientall, lightening and thunders. ♂ in ♓

Venus in Pisces combust, cold: Occidentall, disposed to snow. ♀ in ♓

Mercurie in Pisces combust, moyst ayre. ☿ in ♓

Thus much of the iudgement of weather.

SEeing that I haue now sufficiently declared how, by what rules and tokens weather is iudged: I thinke it conuenient to adioyne here a briefe collection, how Plentie, Scarcitie, Sickness, Death, Alterations, Troubles, Warres, &c. are for euer perceiued.

A rule to prognosticate the aforesayd by the falling of Newyeares day.

IT is affirmed of some, when Newyeares day falleth on the Sunday, then a pleasant Winter doth ensue: a naturall Summer: fruite sufficient: Harueſt indifferent, yet some winde and raine: many marriages: plentie of wine and honey: death of young men, and cattell: robberies in most places: newes of Prelates, of Kings: and cruell warres in the end. Sunday.

ON Monday, a Winter somewhat vncomfortable: Summer temperate: no plentie of fruite: many fansies and fables opened: agues shall raigne: Kings and many others shall dye: Mariages shall be in most places: and a common fall of Gentlemen. Munday.

ON Tuesday, a stormie Winter: a wet Summer: a diuers Harueſt: corne and fruite indifferent, yet hearbes in gardens shall not flourish: great sickneſſe of men, women, and young children. Tuesday.

Beasts shall hunger starue, and dye of the botch: many Shippes, Galleis and Hulkes shalbe lost: And the bloodie Flixes shall kill many men: All things deare, saue corne.

Wednesday. ON Wednesday, Lo a warme winter: In the ende Snow and frost: a blondie Summer, plentie of fruite, of Corne, Hay, Wine and Honey: great paine to women with childe, and death to children: good for sicke: newes of kings: great warres, battell and slaughter toward the middest.

Thursday. ON Thursday, Winter and Summer windie: A rainie Haruest: Therefore wee shall haue ouerflowings. Much fruite: plentie of honey: yet flesh shall be deare: cattell in generall shall dye: great trouble, warres, &c. with a licencious life of the feminine sexe.

Friday. ON Friday, Winter stormie: Summer scant pleasant: Haruest indifferent: little store of fruite, of wine and honey: corne deare: many bleare eyes: youth shal dye: Earthquakes are perceiued in many places: plentie of thunders, lightnings, and tempests: with a sudden death of cattell.

Saturday. ON Saturday, a meane Winter: Summer very hot: a late Haruest: good cheape garden beards: much burning: plenty of Hempe, Flaxe, and honey. Olde folke shall dye in most places: Feuers and Tercians shall grieue many people: great muttering of warres: murthers shall be suddenly committed in many places for light matters.

NOw that I haue opened diuers wayes, both for the learned and vnlearned, how weather to come at all times may be wel iudged and knowne, &c. I thought it meete, for further knowledge therein, not to omit here the naturall causes of such and so many alterations of ayre. Lo, therefore orderly they follow.

Naturall causes, conducing to all the aforesayd: and first of the Rainbow.

THe Rainbow is the shining & rebounding of beames of light, that turne to the contrarie vapour againe in the clowde. It declareth sometime raine, and many times fayre weather: when the one, and how the other, is before opened.

Of Raine.

RAine is a cold vapour, an earthly humour, or fumolities, out of waters or earth drawne vp by the vertue of the Sunne, to the neather part of the middle space of the ayre, there through cold thicked, then dissolued: Thus engendred falleth on the earth.

Here I leaue to speake of miraculous raines, as Milke, Blood, Flesh, Yron, Wooll, &c. For more satisfying in these, reade Plinius in the second booke, 58. chapter.

Quare lapides pluant, lege Plin. lib. 2. cap. 144.

Of Frost and Dew.

A Cold moyst vapour, a little way drawne vp in the day through faint heate of the Sunne, descendeth in the night, dissolued on the earth, there congelated or resolued into water, the one called Frost, the other Dew. The last is a signe of fayre weather in the Spring or Haruest.

Ros æstate, pruina hyeme fit.

Of Snow.

IT is a moist vapour, drawne vp to the middle region of the ayre, then thicked, and frozen into the bodie of a clowde: So congelated descendeth.

Nix, humor modicè concretus.

Of Hayle.

A Clowde resolued into water, in the fall congelated, maketh Hayple. The higher it commeth from aboue, and the longer it tarieth in the ayre, the rounder hayple.

Grando pluuia in descensu congelata.

A generall Prognostication

Of Windes.

Ventorum ergo materia, calida & sicca exhalatio.

WInde is a multitude of drie exhalations, drawne vp from the earth: and aboue the earth enforced here and there.

Of Earthquakes in the most quiet time.

Quemadmodum in nube tonitruum, sic in terra tremor.

PLentie of winds, entred into holes, cones, or caues of the earth, which absent from aboue the earth causeth quietnesse: the violent bursting out of them (the earth closed againe) is the Earthquake: Signum est futurorum bellorum.

Tokens of Earthquakes to come.

Signa terræ motus.

A Firie clowde, appearing in the element like a little pillar, is a token of Earthquakes to come. The obscuritie or darknesse of the Sunne, without clowdes, and strangely coloured, bloodie or otherwise, is a token of Earthquakes.

Also when Well water and others are troubled, or salt, or infected by sauour, &c.

A great quietnes of ayre by land and sea, and chiefly the long absence of winds.

Also strange noyses heard, as clamours of men, rushing of harnesse, mournings, lamentations, &c. All these haue been obserued to signifie Earthquakes at hand.

Of thunders and lightnings.

Fulgetrum prius cerni, quàm tonitrũ audiri, cùm simul fiant certũ est, Plin. lib. 3. cap. 56. contra. Aristo.

THunder is the quenching of fire in a clowde. Or thunder is an exhalation hote and drie, mixt with moysture, carried vp to the middle region, there thicked and wrapped into a clowde: of this hote matter coupled with moystnes closed in the clowde, groweth a strife, the heate beating, and breaking out the sides of the clowde with a thundring noyse: the fire then dispersed is the lightning.

Thus for the learned: *Tonitruum sonitus est, qui editur quando nubem rumpit halitus. Fulmen flamma, vel repentinus est ignis, qui ex collisione nubium, aut ruptura nascitur.* Aristotle affirmeth the lightning after thunder, but the fire doth first appeare, in that the light is before the hearing. If this satisfie not, reade the second of his Meteoron. Here followeth a note of lightnings.

There

There be three kinds of Lightnings, drie, moyst, and cleare.

DRie doe not burne but cleaue, part or diuide. Moyst, burne not, but alter colour. The cleare are of maruellous natures: Full barrels by it are emptied. It melteth money in the purse, it breaketh the sword, the purse and scabberd not perished, yea, waxe in them vnmolten. Note.

Of the Comets or flames in the night.

A Comet is a flame working in a drie, hote, slimie exhalation, drawne vp to the highest part of the ayre. His matter or substance after it is burnt, and dispersed, prouoketh windes. Ventorum causa.

The naturall cause of the Sunne eclipsed.

NOthing else is the Eclipse of the Sunne, but the direct putting the bodie of the Moone betweene the Sun and the earth, or betweene our sight and the Sunne, which chaunce onely at the chaunge.

A Corollarie.

BY this, gather the darknesse at Christs death not to stande by naturall ecliptical cause: but by supernaturall, or myracle. For it was at the full Moone, Scriptures witnesse: which enforced Dionisius Areopagita at the time of his passion, to speak thus: *Aut Deus natura patitur, aut mundi machina dissoluitur.* Miracle.

The cause of the Moone eclipsed.

THe Sunne being in the contrarie poynt to the full Moone, enforceth the shadow of the earth then directly put betweene the Sunnes and the Moone, toward the Moone, hiding more or lesse of the Moone, as she differeth from the Ecliptical. Some obserue pestilent plagues, sudden battell, great dearth, to ensue these Eclipses: which all I desire God to auert from his chosen. Many other thinges by these Eclipses are gathered, as Longitudes of Countreyes, the Quantitie of the Sunne, containing the bignesse of the Earth 162. tymes: the compasse of the Vniuersalis est Eclipsis Lunæ. Non semper in nouilunio, sed in capite & cauda.

the earth 21600. miles: whose thickneſſe, according to Archimedes rule is 6872. miles, and eight eleuenths of a mile.

Omnium planetarum ad terram magnitudo.

The quantitie of the Moone is the 43. part of the earth.
The Sunne containeth the Globe of the Moone 7000. times.
Saturnus comprehendeth the bigneſſe of the earth 91. times.
Iupiter, 65. times. Mars, once, and ten ſixteenths. Venus, the 37. part. Mercurius, one, 32000. part of the earth.

Note here, that Alfraganus affirmeth the leaſt fixed Starre perfectly ſeene, is bigge as the whole earth.

HÆc non erunt admirationi, ſi globi capacitatem ex longitudine diametri quæſieris. Continet enim ſolis dimetiens terræ dimetientem quinquies & ſemiſſem. Eſtq́; proportio diametri Solis ad terræ dimetientem, quæ eſt numeri vndecim ad duo, quintupla ſeſquialtera. Cubus ſolis mille tercentum vnam & triginta partes tales continet, cuiuſmodi terræ cubus octonas complectitur. Cubus enim numeri vndecim, eſt mille tercentum vnum & triginta. Cubus verò binarij, qui eſt terræ, octo. Subducto quoties id fieri poteſt, minore cubo qui eſt terræ, à maiore qui eſt ſolis, cognoſcitur cubi ad cubum proportio, & quãto Sol maior terra ſit. Inuenimus ergo octo centies, ſexagies ſexies, in mille tercentum vno & triginta.

Dimetiens ⊙ ad terræ dimetientem vndecim ad duo.

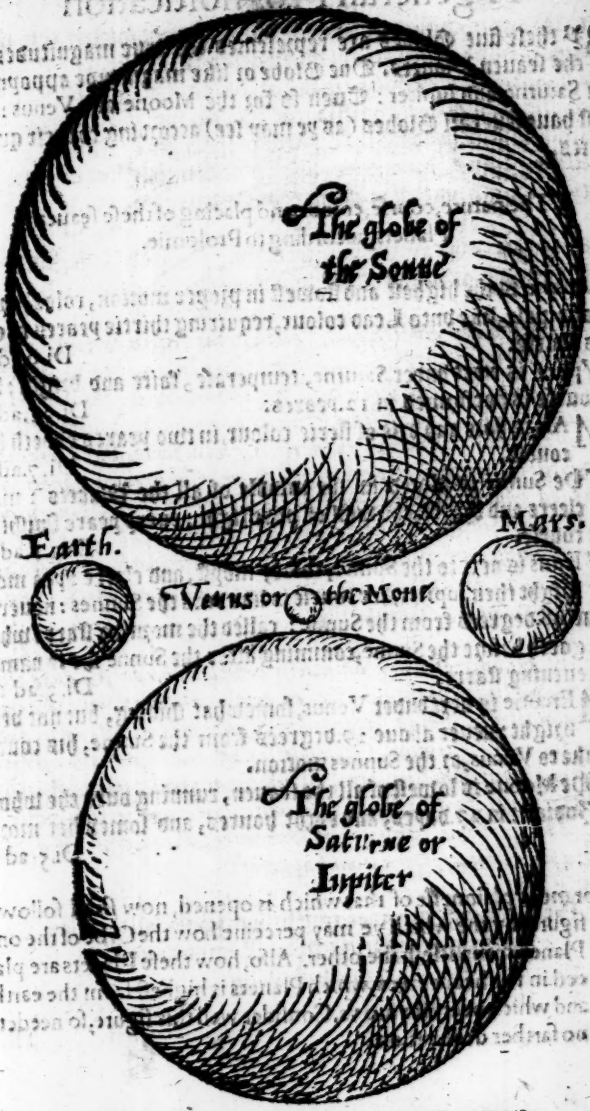
Cubus ⊙ 1313 Terræ, 8.

Terræ Diametros Lunæ dimetiens complectitur ter, & duas eius diametri portiones quintas: eſtq́; ea proportio dimetientis terræ ad Lunæ diametrum, quæ eſt ſeptendecim ad quinque tripla ſuperbi partiens quintas. Cubus numeri ſeptendecim eſt quater mille nonagenta terdecim. Cubus numeri quinque eſt centum viginti quinque. Maiore cubo per minorem diſtributo, reperimus numerum certum viginti quinque, tricies nouies in quater mille nonagentis tredecim: quod paululum à ſuperioribus obſeruationibus differt.

Dimetiens terræ ad diam. ☽ 17. ad 5 Cubus terræ 14913. Cubus ☽ 125.

The quantities or rather true proportion of all the Planets vnto the earth, ocularly demonſtrated by figure following.

The



Mercurie is but a poynt in respect of these Quantities.

By these fiue Globes are represented the true magnitudes of the seauen Planets. One Globe or like magnitude appointed for Saturne and Iupiter: Euen so for the Moone and Venus: the rest haue their all Globes (as ye may see) according to their quantities.

The nature, course, colour, and placing of these seauen Planets, according to Ptolomie.

♄ SAturne is the highest and slowest in proper motion, colde, drie, and pale, like vnto Lead colour, requiring thirtie yeares to end his course. Di. 9. ad. 2.

♃ IVpiter is next vnder Saturne, temperate, faire and bright: his course is performed in 12. yeares. Di. 32. ad 7.

♂ MArs is hote and drie of fierie colour, in two yeares endeth his course. Di. 7. ad 6.

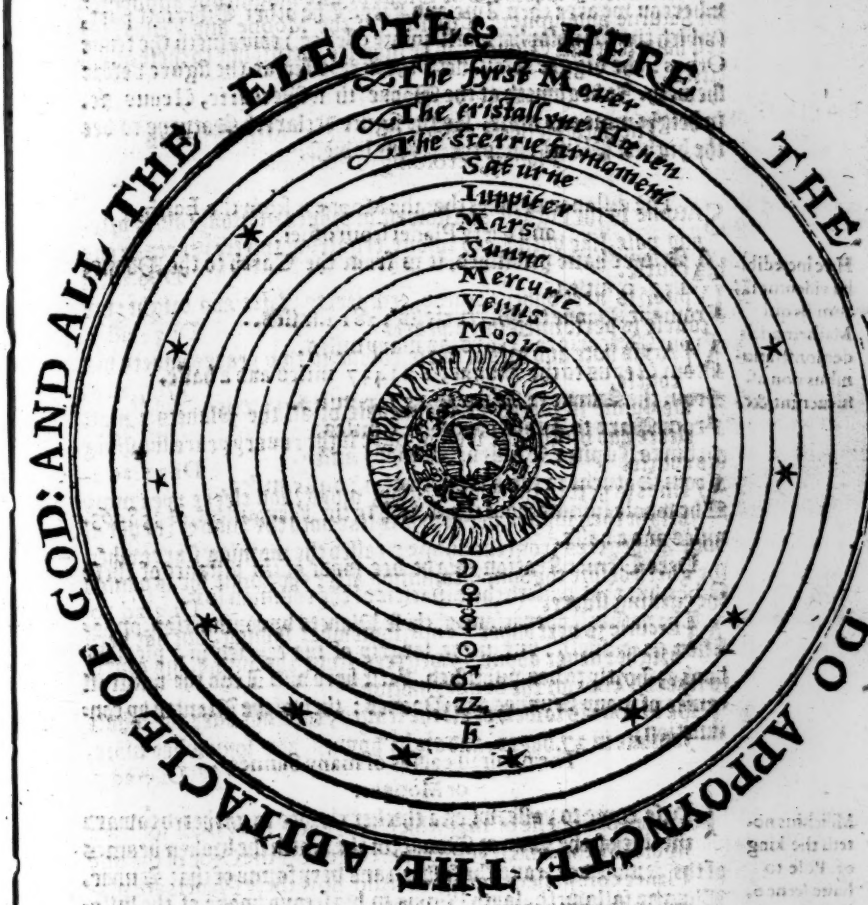
☉ THe Sunne is placed in the middle of all the Planets: most cleere and bright, the well of pure light: euery yeare finishing his course. Di. 11. ad 2.

♀ VEnus is next to the Sunne, colde, moyst, and cleere: yea more bright then Iupiter, her course is like vnto the Sunnes: neuer aboue 48. degrees from the Sunne: called the morning starre when she goeth before the Sunne, comming after the Sunne she is named the euening starre. Di. 3. ad 10.

☿ MErcurie is next vnder Venus, somewhat shining, but not very bright: neuer aboue 29. degrees from the Sunne, his course is like to Venus, or the Sunnes motion.

☽ THe Moone is lowest of all the seauen, running ouer the whole Zodiake in 27. dayes, and eight houres, and somewhat more. Di. 5. ad 7.

For more plainesse of that which is opened, now shall follow a figure, by the which ye may perceiue how the Orbe of the one Planet compasseth the other. Also, how these Planets are placed in the heauen: yea, which Planets is highest from the earth, and which neerest vnto vs. Consider well this figure, so needeth no farther declaration.


THE ABITACLE OF GOD: AND ALL THE ELECTE & HERE THE LEARNED DO APPOYNCTE
The fyrst Mouer
The cristallyne Hæuen
The sterrie firmament
Saturne
Iuppiter
Mars
Sunne
Mercurie
Venus
Moone

Ye may here behold first the Elementall part subiect vnto alteration, consisting of the foure Elements, first Earth and Water, whereon we are: then Ayre and Fire. The other Etheriall part, (which the Philosophers call Quinte essence) containeth the tenne Orbes: the bigger compasseth the nexte following as the figure before sheweth. It beginneth at the Moone, then Mercurie, Venus, &c. in height more and more. As the figure declareth Saturne to bee the highest Planet: so is the Moone lowest.

The distance or miles that the Moone is from the Earth, and euery Planet from other.

Hæc incredibilia videntur tãtum ijs qui Mathematicis demonstrationibus non assueuerunt, &c.

As some haue published, it is from the Earth to the Moone, 15750 miles.
From the Moone to Mercurie, is 12812. miles.
From Mercurie to Venus, as many miles.
From Venus to the Sunne, is 23437. miles and a halfe.
From the Sunne to Mars, is 15715. miles.
From Mars to Iupiter, is 78721. miles.
From to Iupiter Saturne, as many miles.
From Saturne to the Firmament, 120485. miles.
The whole summe from the Earth to the Firmament, is 358463. miles and a halfe.

Here Demonstration might bee made of the distance of these Orbes, but that passeth the capacitie of the common sort.

The naturall operations of these Planets by coniunction, opposition &c. ensueth: but more largely of me opened in a pleasant booke, shortly to bee published. First here will I end the naturall causes of many Sunnes and Moones: then of the Planets by coniunction.

The naturall causes of many Sunnes or Moones.

Milichius noteth the king of Pole to haue seene 6. Suns at once.

This come to passe, when a thicker cloude is gathered toward the line of the Sun or Moone, in the which the broken beames of the Sunne doe leaue the fashion and very forme of that Sunne. Thus as followeth, sayth Plinius in his second booke of the historie of Nature, and 31. chapter. No moe Sunnes are perceiued in our time thee three: and they are neuer seene, either about or beneath

neath the Sunne, but on the sides: neuer in the night, but onely at the Sunne rising or going downe.

What is to be chosen or auoyded vnder euery aspect of the Moone, with her signification in the 12. signes touching the same.

The Coniunction, Quadrature, or Opposition of Saturn with the Moone, causeth an euill vnluckie day for al matters. Leaue therefore to haue to doe any manner way: nothing shall prosper or come well to passe then attempted. Yet the Sextile or Trine of Saturne with the Moone, declareth a conuenient time to till, delue, or digge, to sow, to lay foundations, to erect or repaire houses, yea, a meete time to obtaine suites of fatherly farmers. The Moone in Capricornus or Aquarius, bringeth this latter effect of the Sextile and Trine. ♄ ☌ □ & 8 cum ☽ ♄ ✶ △ cum ☽ ☽ in ♑ vel ♒

The Coniunction, Sextile, Trine, Quadrature or Opposition of Iupiter with the Moone, sheweth a fortunate day, chiefly to obtaine suites of Kings, noble Princes, Prelates, of Lawyers and Religious persons: and a meete time to studie, to iourney, to take an honest matter in hand. The Moone in Taurus, in Leo, or Sagittarius, sheweth the same. ♃ ☌ ✶ △ □ vel 8 cum ☽ ☽ in ♉ ♌ vel ♐

The Coniunction, Sextile, Trine, Quadrature or Opposition of Mars with the Moone, warneth thee not to match thy selfe that day with warriours: notwithstanding very good and most meete to finish all manner kris works: vaught to iourney: yet most conuenient for valiant Captaines to worke their feate, to leade, encourage or stomacke their souldiers: most vnmeete to treate peace, to take seruants, or to seeke friendship. ♂ ☌ ✶ △ □ vel 8 cum ☽

The Coniunction, Quadrature or Opposition of the Sunne with the Moone, declareth a very vnhappie day for all matters: therefore attempt nothing, ne any manner suite, neither plant, build, ne iourney. Yet the Sextile and Trine are very fortunate, specially to obtaine suite of Kings, Princes, and other Nobles. The Moone in Aries, enforceth the effect of this latter part. ☉ ☌ □ vel 8 cum ☽ ☽ in ♈

♀☌✶△□ vel ☌ cum ☽ The Coniunction, Sextile, Trine, Quadrature, or Oppositiõ of Venus with the Moone, causeth a day most apt to obtaine all suites of women, good to woo, to attempt mariage, and to follow all manner of pleasures, and pleasant pastimes: not vnmeet to hire seruants, to let bloode, &c. The Moone in Libra or Pisces prouoketh the like.

☿☌✶△□ vel ☌ cum ☽ The Coniunction, Sextile, Trine, Quadrature or Oppositiõ of Mercurie with the Moone, promiseth a fortunate happie day to buy and sell: very good to enter children in liberall Arts: an apt time for the Vertuous: good to vse Marchandise, to iourney, to send emballage, to giue accounts, and such like.

☽ in ♊ ♋ vel ♍. The Moone in Gemini, Cancer, or Virgo, enclineth euen to the same aforesayd.

□△✶☽☊ ☾ The Moone with the Dragons head, sheweth a luckie day for all matters: with the taile, contrarie.

Now ensueth a Table shewing what Signe the Moone is in, and shall be for euer: declaring also the meetest time to let blood, to purge and to bathe.

The Table hath at the head seauen titles. The first moneths: the second dayes: then the Planets: the twelue Signes: the times to let bloode: to purge, and to bathe.

Here is to bee noted, that those dayes are good for these purposes, which be signed with this letter G. and those euill dayes, that are noted with B.

This

A Tab letting blood,

This Table declareth for euer, in what Signe the Moone is or shall be at any daye in the yeare. It serueth also very well to let Bloud, to Purge, and Bathe.

Monethes.	Dales.	Prime.	The 12. Signes.	To let Bloude	To Purge.	To Bathe.
Febr. Nouē.	1	3	Aries.	G	B	G
Marche.	2		Aries.	G	B	G
	3	14	Taurus.	B	B	B
Decembre.	4	6	Taurus.	B	B	B
	5		Gemini.	B	G	
Aprill.	6	17	Gemini.	B	G	
	7	9	Cancer.		G	G
Maie.	8	1	Cancer.		G	G
	9		Cancer.		G	G
	10	12	Leo.	B	B	G
	11	4	Leo.	B	B	G
Iune.	12		Virgo.	B	B	B
	13	15	Virgo.	B	B	B
Iuly.	14	7	Libra.			
	15		Libra.			
	16	18	Scorpius.		G	G
	17	10	Scorpius.		G	G
Auguste.	18	2	Scorpius.		G	G
	19		Sagittarius	G		G
	20	13	Sigittarius.	G		G
	21	5	Capricornus	B	B	B
Septembre.	22		Capricornus	B	B	B
	23	16	Aquarius.			G
Ianua. Octo.	24	8	Aquarius.			G
	25		Pisces		G	G
	26	19	Pisces.		G	G
	27	11	Pisces.		G	G

SEeke out vnder the titles of the Moneths, the name of the moneth, whose day you must loke out right against the moneth, vnder the title of daies, and there begin to tell downwards, 1.2.3. &c. to the end, if it so require, and then from the beginning, if need be, vntill ye haue reckoned the number of the day that you seeke. Looke what number it falleth vpon in this table vnder the title of daies, that number keepe in minde. Then seeke vnder the title of the Prime, the Golden number for the yeare, right against that, leftward vnder the title of dayes: begin to tell downwards, 1.2.3. &c. vntill you haue reckoned the number which you did keepe in mind. Against that, towards your right hand vnder the title of Signes, is the signe wherein the Moone shall be that day. Euen then vnder the other titles, ye shall finde in right order for letting Blood, for Purging and Bathing, according as they be noted with G. which is good, and B. signifying bad.

Example.

The first day of March in the yeare of our Lord 1555. I desire to know what celestiall signe the Moone doth then occupie. I find first the name of the moneth, that is March: and the day as followeth, in the next order of this table. I begin here to tell right against my moneth, at the figure of 2. saying, 1.2.3 &c. so I haue at the end and count of fiue dayes this figure 7. which I keep in minde. Now I must seek out the Golden number for the yeare aforesaid, vnder the title of the Prime here, that is 7. against the which on the left side is 6. There ye must beginne againe to count, 1.2.3. &c. vntill you come to your number 7. So on your right hand in the row of order, you shall see Virgo, the celestiall Signe that the Moone is in: and after that these three letters B which declare bad, or euill to let Blood, to Purge, or Bathe, agreeable to the titles in the head G. there bad signified good.

FOrasmuch as letting of Blood, Purging, and Bathing, Inunctions, Floods, Timberfalling, Sowing, Planting, Grafting, Cutting, &c. depend chiefly on the Signe wherein the Moone is, which I haue euen before plainly opened: I thought it meete to haue them now orderly touched as followeth.

A conducible note for letting blood.

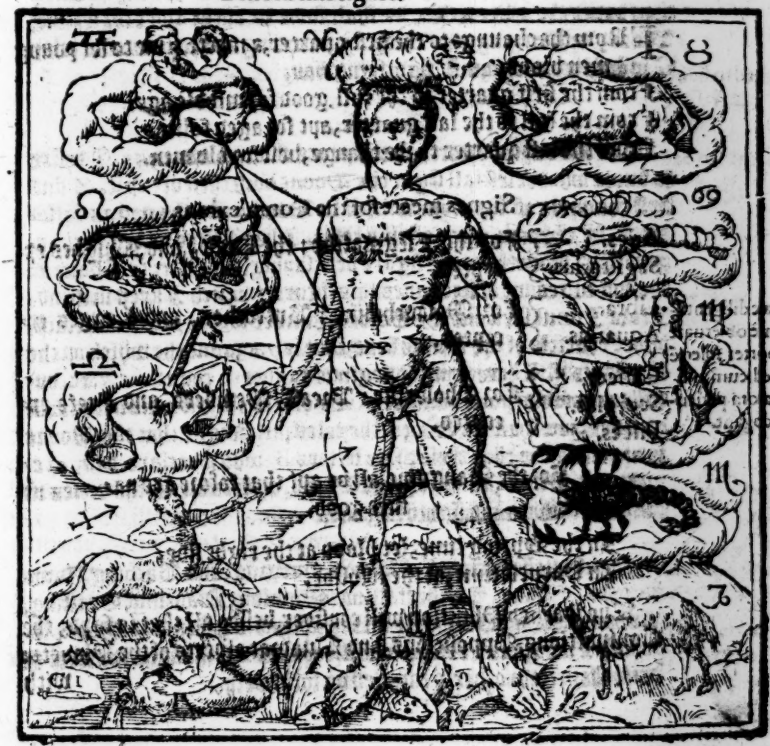
LEt blood at no time without great cause, for it bringeth weakneſſe and many infirmities. If ye doe, ſee it be after good digeſtion, and faſting, in a faire temperate day. Beware before of all manner exerciſes, bathings, watchings, and carnall copulation, &c. After vſe fine meates, of light digeſtion, abſtaining from all the aforeſayd, vntill the fourth day.

Malum minui, vel purgationibus vti, tempore caloris, propter defectū humoris.

Theſe Signes are moſt dangerous for bloodletting, the Moone being in them: Taurus, Gemini, Leo, Virgo, and Capricornus, with the laſt halfe of Libra, and Scorpius. The reſt are all good, ſo the Moone beare no dominion in that member which ye cut: as followeth.

Ill to let blood in ♉ ♊ ♌ ♍ ♑

Behold this figure.



The Dominion of the Moone in mans body.

Aries.	The	Head, and Face.
Taurus.		Necke.
Gemini.		Armes, Hands, Shoulders.
Cancer.		Brest, Stomache, Ribbes.
Leo.		Heart, Backe.
Virgo.		Bowels, Belly.
Libra.		Raynes, Nauill, Buttockes.
Scorpius.		Secret members.
Sagittarius.		Thighes.
Capricornus.		Knees.
Aquarius.		Shinnes, Legges.
Pisces.		Feete.

FRom the chaunge to the first quarter, a meete time to let young men bloud.

From the first quarter to the full, good for middle age.

From the full to the last quarter, apt for aged folke.

From the last quarter to the chaunge, best for old men.

Signes meete for the Complexions.

Aries. Sagittarius.	For the Flegmatike: the Head, and Thighes excepted.
Libra. Aquarius.	For Melancholike: Buttockes, and Legges excepted.
Cancer. Scorpius. Pisces.	For Cholerike: Breast, Members, and Feete excepted.

Hæc diligentissimè obseruare oportet solertem Medicum, nisi maiora periculacogant.

For the Sanguine, all be apt that foloze are named good.

In the Spring time, let bloud at the right side.

In Harueſt time, at the left side.

The learned Phisition will consider, beside all that is sayd, the Coniunctions, Oppositions, and Quadrat aspects of the Planets with

with many other things Astronomicall, most necessarie, both in blood-letting, purging, bathing, &c.

For to take purgations, and to bathe.

The meetest time to take purgations, &c. is neither in hote, nor cold dayes: that is, from the tenth of March, to the twelfth of June.

Further by rules Astronomicall, it must bee performed when the Moone is in cold, moyst, and warrie Signes, as Cancer, Scorpius, and Pisces: comforted by aspects and radiations of Planets, fortifying the vertue of the bodie expulsive. Good to purge ♋ ♏ ♓

The Moone in Aries, Taurus, and Capricornus, naught. One cause of vomiting the purgation is, if the Moone haue aspect to any Planet retrograde. Bad to purge. ♈ ♉ ♑

The Moone in these Signes following, very good to bathe: Aries, Leo, Sagittarius, Cancer, Scorpius, and Pisces. Good to bathe ♈ ♌ ♐ ♋ ♏ ♓

These ensuing are euil to bathe, Taurus, Virgo, Capricornus. Bad to bathe. ♉ ♍ ♑

Of Inundations or floods: of timber felling, sowing, planting, graffing, haire clipping, shaving, and gelding.

The flood is biggest at the full: because then dispersing her vertue, she filleth all places with moysture. By common experience ioyned with learning. Also we, at the full the Moone loseth all bodies with humors: and so are emptied, growing to the change. Of this some gather the fall of timber at the chaunge, more to the purpose then other times, wanting then superfluous moisture, the cause of putrifaction, *Omnis putredo ab aqueo humido oriunt habet.* Schoner willeth from the 15. day vnto the 25. day of the Moone trées to be felled, and that after Midsomer to January. So timber is strong, sound, and voyd of wormes. The fall of Timber.

To sowe: Taurus, Cancer, Virgo, Libra, and Capricornus, are best in the increase of the Moone. Good to sow. ♉ ♋ ♍ ♎ ♑

To plant or graffe, is best when the Moone hath her being in any fixed Signe, either in Taurus, or Aquarius in the increase. To plant or graffe. ♉ ♒

To cut haire ♉ ♍ ♎. Hayre cut groweth well, the Moone encreasing, being in Taurus, Virgo, or Libra.

Cutting, Shauing, Clipping, in the wane causeth baldnesse: what is then cut, groweth litle. *Caluitium prohibet oleum Tartari.*

The best time of Cutting is in Cancer, Scorpio, or Pisces, in the wane.

These two rounde Tables that nowe ensue, conduce to the rest following.

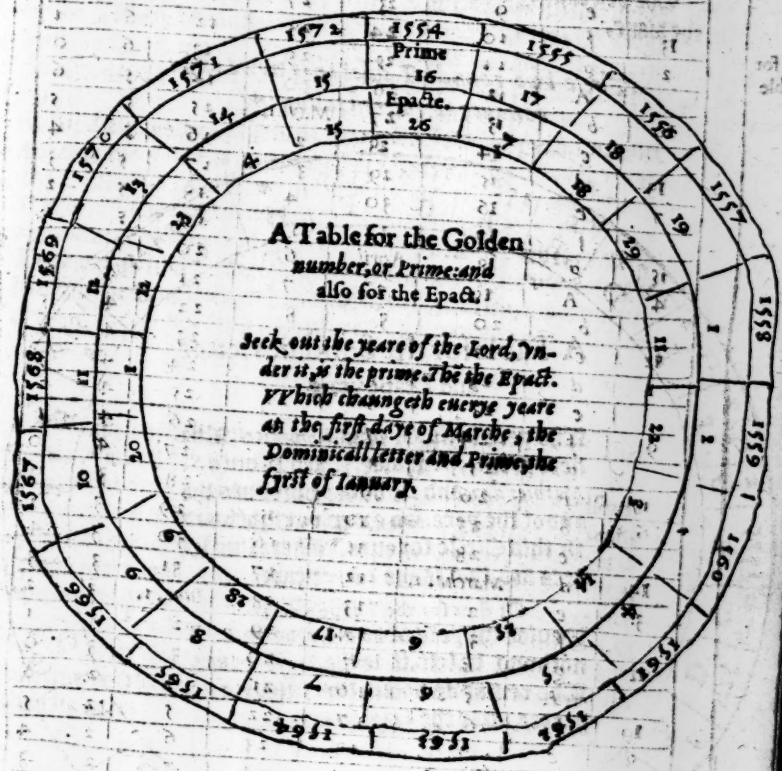
A Table for the Sondaies letter and Leape yeare.

The yere 1554. *G.* was *Dominical.* The next yere 1555. *F* shalbe. Then *E*, vnto *S. Mathies day*, and *D.* vnder him vnto the end of the yere. So orderly, rightward in this Circle for euer, where two letters are, that is the *Leape* yeare.

Or thus for the Leape yeare.

Deuide the yere of our Lorde by 4. if nothyng be left, it is the *Leape* yeare, The remayne noteth the. 1. the. 2. or. 3. yeares after the *Leape* yeare.

When yee haue gone rounde about the yeares, of these two Tables, begin againe.



The

The prime.	The sondaies letter.	The first Lent sonday.	Easter day.	Rogation.	whitsontide.	Betwixt whitsond. & midso.	
16		Februarie.	Marche.	April.	Maye.	wek.	daies
5	d	8	22	26	10	6	3
	e	9	23	27	11	6	2
13	f	10	24	28	12	6	1
2	g	11	25	29	13	6	0
	A	12	26	30	14	5	6
10	b	13	27	May. 1.	15	5	5
	c	14	28	2	16	5	4
18	d	15	29	3	17	5	3
7	e	16	30	4	18	5	2
	f	17	31	5	19	5	1
15	g	18	Aprill. 1	6	20	5	0
4	A	19	2	7	21	4	6
	b	20	3	8	22	4	5
12	c	21	4	9	23	4	4
1	d	22	5	10	24	4	3
	e	23	6	11	25	4	2
9	f	24	7	12	26	4	1
	g	25	8	13	27	4	0
17	A	26	9	14	28	3	6
6	b	27	10	15	29	3	5
	c	28	11	16	30	3	4
14	d	Marche. 1.	12	17	31	3	3
3	e	2	13	18	Iune. 1.	3	2
	f	3	14	19	2	3	1
11	g	4	15	20	3	3	0
	A	5	16	21	4	2	6
19	b	6	17	22	5	2	5
8	c	7	18	23	6	2	4
	d	8	19	24	7	2	3
	e	9	20	25	8	2	2
	f	10	21	26	9	2	1
	g	11	22	27	10	2	0
	A	12	23	28	11	1	6
	b	13	24	29	12	1	5
	c	14	25	30	13	1	4

The vse of this Table appoynted for the moueable Feasts.

THis Table containeth in the first title the Prime: in the second, the Dominical letter: in the third, Lent: in the fourth, Easter day: in the fift, Rogation day: in the sixt, Whitsunday: in the seauenth, how many weekes and dayes are betwene Whitsunday and Midsomer. Which all appeare by their titles.

Ye shal consider by the little round Table before put forth, what number the Prime is that yeare, whereof ye require to know all these aforesayd: and seeke that number vnder the first title of this Table ensuing. Then seeke vnder the second the Dominical letter, next after the Prime for that yeare: which title ensueth the Prime. Directly against the same Dominicall letter, towards your right hand, in the same line, ye shall finde vnder the titles, what moneth and day, euery one of these aforesayd shall happen.

Example.

I would know this yeare of our Lorde 1555. these moueable Feasts: the first Lent Sunday, Easter day, Rogation dayes, Whitsunday, and how many weekes betwixt Whitsunday and Midsommer day. First I finde the Prime this yeare 17. which 17. I looke out vnder the title of Prime in the Table before. Then I seeke in the next order, and after the Prime, for the Dominicall letter that yeare. Now in right order, according to the title, I finde the third of March to bee the first Lent Sunday: the 14. of Aprill Easter day: the 19. of May Rogation: the 2. of June Whitsunday: and 3. weekes and 1. day betwixt Whitsunday and Midsummer day. Thus for euer.

How

How to know the age of the Moone: then the chaunge, and quarter for euer.

By the Prime the change is knowne, but vncertainly: therefore here omitted.

FIrst learne the Epact (as I haue instructed) for that yeare ye desire to know the age of the Moone, then reckon how many dayes are past of the moneth, which day ye desire to know the age. Put that number to the Epact. Then begin at March, and reckon for euery moneth from him orderly one, vntil your sayd day, including both the moneth of March, and also the moneth of your sayd day. Adde all these dayes vnto your former number, putting away as many thirtie dayes as ye finde. The rest is the age of the Moone. The age found, the chaunge is knowne. If ye adde seauen dayes to the chaunge, ye haue the first quarter: then seauen dayes, and somewhat more, sheweth the full: and so to it adding seauen and more, bringeth the last quarter thus, by seauen vnto the new Moone.

Example.

In anno Bisextili vnum adde

The tenth day of January, the yeare then being 1555. I desire the age of the Moone, I finde the Epact vntill March ensuing to be twentie fiue, that added vnto tenne, maketh thirtie fiue, then eleuen for the moneths from March to January, including both moneths, bringing forth seauen: now thirtie pulled away, leaueth fiueteene the age of the Moone.

Now ensue the perfect Tables, declaring the true houre and minute of ebbing and flowing in most coasts of England.

Dain South-empton. Portsmoth	Redban Aberdē	Graues ende.	Dūdee. S And.	Sea of the Moon	London Tinmot Hertle pole.	Ber-wyke.	Erith. Lyeth. Dūbar.	Falmot
South.	S b w.	S S w.	S w b S		S w.	S w b w	w S w	w b S.
H. M.	H. M.	H. M.	H. M.	☽	H. M.	H. M.	H. M.	H. M.
12 48	1 33	2 18	3 3	1	3 48	4 33	5 18	6 3
1 36	2 21	3 6	3 51	2	4 36	5 21	6 6	6 51
2 24	3 9	3 54	4 39	3	5 24	6 9	6 54	7 39
3 12	3 57	4 42	5 27	4	6 12	6 57	7 42	8 27
4 0	4 45	5 30	6 15	5	7 0	7 46	8 30	9 15
4 48	5 33	6 18	7 3	6	7 48	8 33	9 18	10 3
5 36	6 21	7 6	7 51	7	8 36	9 21	10 6	10 51
6 24	7 9	7 54	8 39	8	9 24	10 9	10 54	11 39
7 12	7 57	8 42	9 27	9	10 12	10 57	11 42	12 27
8 0	8 45	9 30	10 15	10	11 0	11 45	12 30	1 15
8 48	9 33	10 18	11 3	11	11 48	12 33	1 18	2 3
9 36	10 21	11 6	11 51	12	12 36	1 21	2 6	2 51
10 24	11 9	11 54	12 39	13	1 24	2 9	2 54	3 39
11 12	11 57	12 42	1 27	14	2 12	2 57	3 42	4 27
12 0	12 45	1 30	2 15	15	3 0	3 45	4 30	5 15
12 48	1 33	2 18	3 3	16	3 48	4 33	5 18	6 3
1 36	2 21	3 6	3 51	17	4 36	5 21	6 6	6 51
2 24	3 9	3 54	4 39	18	5 24	6 9	6 54	7 39
3 12	3 57	4 42	5 27	19	6 12	6 57	7 42	8 27
4 0	4 45	5 30	6 15	20	7 0	7 45	8 30	9 15
4 48	5 33	6 18	7 3	21	7 48	8 33	9 18	10 3
5 36	6 21	7 6	7 51	22	8 36	9 21	10 6	10 51
6 24	7 9	7 54	8 39	23	9 24	10 9	10 54	11 39
7 12	7 57	8 42	9 27	24	10 12	10 57	11 42	12 27
8 0	8 45	9 30	10 15	25	11 0	11 45	12 30	1 15
8 48	9 33	10 18	11 3	26	11 48	12 33	1 18	2 3
9 36	10 21	11 6	11 51	27	12 36	1 21	2 6	2 51
10 24	11 9	11 54	12 39	28	1 24	2 9	2 54	3 39
11 12	11 57	12 42	1 27	29	2 12	2 57	3 42	4 27
12 0	12 45	1 30	2 15	30	3 0	3 45	4 30	5 15
North.	N b E	N n E	N e b N	☽	N E	N e b E	E n E	E b N.

The first
for the ti

Foy Lyn. Hüber. weimot. Dertm. Plimot.		Briſtw.		Milſo. Bridge water.		Portl. Peter. porte.		Age of the Moone.	Orkn. Pole. Orf. vel.		Diep. Lux. Les noys.		Boloig. Douer. Harwick Yarmot.		Calice.	
Eaſt.		E b S.		E S E		S e b E			S E		S e b S		S S E		S b E	
H.	M.	H.	M.	H.	M.	H.	M.	☽	H.	M.	H.	M.	H.	M.	H.	M.
6	42	7	33	8	18	9	3	1	9	48	10	33	11	18	12	3
7	36	8	21	9	6	9	51	2	10	36	11	21	12	6	12	51
8	24	9	9	9	54	10	39	3	11	24	12	9	12	54	1	39
9	12	9	57	10	42	11	27	4	12	12	12	57	1	42	2	27
10	0	10	45	11	30	12	15	5	1	0	1	45	2	30	3	15
10	48	11	33	12	18	1	3	6	1	48	2	33	3	18	4	3
11	36	12	21	1	6	1	51	7	2	36	3	21	4	6	4	51
12	24	1	9	1	54	2	39	8	3	24	4	9	4	54	5	39
1	12	1	57	2	42	3	27	9	4	12	4	57	5	42	6	27
2	0	2	45	3	30	4	15	10	5	0	5	45	6	30	7	15
2	48	3	33	4	18	5	3	11	5	48	6	33	7	18	8	3
3	36	4	21	5	6	5	51	12	6	36	7	21	8	6	8	51
4	24	5	9	5	54	6	39	13	7	24	8	9	8	54	9	39
5	12	5	57	6	42	7	27	14	8	12	8	57	9	42	10	27
6	0	6	45	7	30	8	15	15	9	0	9	45	10	30	11	15
6	48	7	33	8	18	9	3	16	9	48	10	33	11	18	12	3
7	36	8	21	9	6	9	51	17	10	36	11	21	12	6	12	51
8	24	9	9	9	54	10	39	18	11	24	12	9	12	54	1	39
9	12	9	57	10	42	11	27	19	12	12	12	57	1	42	2	27
10	0	10	45	11	30	12	15	20	1	0	1	45	2	30	3	15
10	48	11	33	12	18	1	3	21	1	48	2	33	3	18	4	3
11	36	12	21	1	6	1	51	22	2	36	3	21	4	6	4	51
12	24	1	9	1	54	2	39	23	3	24	4	9	4	54	5	39
1	12	1	57	2	42	3	27	24	4	12	4	57	5	42	6	27
2	0	2	45	3	30	4	15	25	5	0	5	45	6	30	7	15
2	48	3	33	4	18	5	3	26	5	48	6	33	7	18	8	3
3	36	4	21	5	6	5	51	27	6	36	7	21	8	6	8	51
4	24	5	9	5	54	6	39	28	7	24	8	9	8	54	9	39
5	12	5	57	6	42	7	27	29	8	12	8	57	9	42	10	27
6	0	6	45	7	30	8	15	30	9	0	9	45	10	30	11	15
V.Veſt.		w.b n		w n w		n w b w		☽	n w		n w b n		n n w		n b w	

The vse of these Tables.

When you will know the full Sea, seeke out the name of the place, where you desire the full water, in the head of the Tables: or learne the poynts of the Compasse there noted: or if you list, know of some mariner, what Moone maketh a full sea there: a Southwest or South Moone, &c. Then the age of ỹ Moone found vnder the place or point of ỹ compasse, sheweth in right order the houre and minute of the full water. The ebbe then is manifest.

Example.

I desire to know the full water at London bridge, the yeare of our Lord 1555. the first day of February. I finde by rules before put forth, the 6. day of February the yeare aforesayd, the Moone to bee 14. dayes olde. I see also vnder the title where London is S. W. which letters signifie that a Southwest Moone maketh a full Sea there: and that is at 2. of the clocke, and 12. minutes past. This is well perceiued in the first Table before put forth, if you run down to ỹ 14. day of the age of the Moone, vnder London title.

A note of the houre of the day and night.

The ingenious may gather neere about the houre of the day and night, by the Moone: consideration had of the poynts in these Tables of tydes before nated. For the houre is orderly put vnder the poynt of the compasse.

Euery part or poynt containing 11. degrees and ½: this compasse is well figured neere about the Centre in the instrument following for the night houre, because ye may by it haue a delectable large vse of these tide tables.

How by the first of the tide tables, ye may readily know when the Moone commeth into the South, when she riseth and setteth: with her continuance on the earth.

Seeke the age of the Moone (as is opened) then resort to the first tide table, looking out that age there: So vnder the South poynt in right order the houre appeareth, when she commeth vnto the South. Then hath she spent halfe that arcke that the Sunne would haue had in that Signe, which pulled away, sheweth the rising: that halfe arcke also added to her comming vnto the South, declareth her going downe. The arck then that the Sunne would haue had in the Signe, is her continuance on the earth.

A Table at all times plainly and briefly declaring the breake of the day: the houre and minute of the Sunne rising: the iust length of the day: the length of the night also: the very minute of the Sunne setting: and the twylight.

Moneths	Dayes.	Break of the day.	Sunne rysinge.	Lengthe of the day	Legthe of the night	Sunne settinge.	Twylyghte.	Dayes.	Moneths.	Minutes to be added to the Legth of the daye.
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.			
ber.	10	6 0	8 11	7 37	16 23	3 49	6 0	10	Dec.	3
	20	5 58	8 10	7 40	16 20	3 50	6 2	1		3
Ianu.	1	5 54	8 0	8 0	16 0	4 0	6 6	20	Nouē.	7
	10	5 44	7 49	8 21	15 39	4 11	6 16	10		5
	20	5 35	7 34	8 52	15 8	4 26	6 25	1		5
Febr.	1	5 15	7 13	9 34	14 26	4 47	6 45	20	Octo.	8
	10	5 0	6 56	10 8	13 52	5 4	7 0	10		5
	20	4 50	6 36	10 47	13 13	5 24	7 10	1		13
Mar.	1	4 20	6 19	11 22	12 38	5 41	7 40	20	Septē.	16
	10	4 0	6 1	11 58	12 2	5 59	8 0	10		13
	20	3 40	5 41	12 37	11 23	6 19	8 20	1		12
Apr.	1	3 8	5 18	13 23	10 37	6 42	8 52	20	Aug.	15
	10	2 40	5 1	13 57	10 3	6 59	9 20	10		11
	20	2 10	4 43	14 33	9 27	7 17	9 50	1		13
May.	1	1 30	4 25	15 9	8 51	7 35	10 30	20	Iul.	13
	10	0 30	4 12	15 35	8 25	7 48	11 30	10		7
	20	Cōtinuall day.	4 0	15 59	8 1	8 0	Day continuall.	1	ne.	3
Iu-	1		3 51	16 17	7 43	8 9		20		
	10		3 48	16 23	7 37	8 12		10		
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.			

The vse of this table.

Consider the Moneth and day, that ye require any of the toforesayd: and seke in this Table that same under the title: procede in ryght ordre, so ye haue your purpose. If the uery day be not founde, take the nearest of your table. ¶ Or by proportion the truthe is geuen: whiche all by Ensample folowyng shall playnly be declared.

Example.

The first day of Ianuarie, I desire all the aforesayd: that is, the breake of the day: the very minute of the Sunne rising, the length of the day, and also of the night: the Sunne going downe, and the twylight: I finde on the right hande of Ianuarie these numbers running down. 1. 10. 20. which declare the first day, the tenth day, and twentith of that moneth. Now to my purpose. I require the breake of the day, &c. The first of Ianuarie, in the Table, under the title, on the right hande of this figure 1. I see 5. houres, and 54. minutes, that is 6. of the clocke wanting 6 minutes. The rising of the Sunne in that order, is iust at 8. as this figure 8. there declareth under that title in the row. The length of the day, 8. houres: the length of the night 16. houres: the Sunne setting is at 4. the twylight at 6. and 6. minutes. Euen thus for the tenth day, and also for the twentith of that moneth, in the rowes according to their titles in the head of my Tables.

How to worke by proportion, when the day is not found.

I Would know all the aforesayd: the first day of Ianuarie, I take for example the breake of the day. Remember the first day of Ianuarie, I did finde the breake to be at 5. of the clocke and 54. minutes: and the tenth day I may finde the breake of the day to bee at 5. and 44. minutes, that is 10. minutes lesse. I see now 10. daies do giue me 10. minutes lesse: I say therefore (by proportion) the fift day must giue 5. minutes lesse then 5. houres 54. minutes: which is 5. houres, 49. minutes my request. Thus for all the other titles.

The houre of the night by the Moone, is otherwise found then before, and that diuersly.

How by the Moone the night houre is found.

THe houre of her rising knowne, as is opened, and a marke then made where she shadoweth, in any true fixed or moueable Sun diall, the houres and minutes from that marke all the night after are to bee added to her rising. If more then 12. surmount, onely that aboue 12. sheweth the true houre and minute. If at the rising she may not bee seene, then by the Sunne rising, in that very Signe (with the helpe of this Almanack) you may perceiue what houre she would note at her rising. Therefore from that marke, count.

An other way.

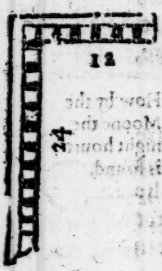
Of ebbing and flowing.

When the Moone is at the full, looke what houre her shadowe sheweth in any Dial, that is the houre of the night. After she is past the full 18. houres, ye must adde one houre: But afore the full, pull one from that ye stude in the Diall. If twise 18. two houres, yet so haue ye the houre of the night.

How the houre of the day, by Right shadow, that is, by any thing directly standing vp, is knowne: and by Squire shadow also.

First it behoueth you to haue a Staffe, or any other thing diuided in 12. equall parts. When ye list to haue the houre, set vp directly your diuided Staffe, on a plaine leuell ground, or boord, &c. Note the iust length of the shadowe, what parts it containeth. With those enter your moneth in the peculiar Kalendar following: beholding diligently vnder the name of the moneth, the small enclosed Tables: considering well, which of those small Tables are neerest vnto your day: and that iudge by the signe, or day there noted. That table serueth your purpose: where you must look out the parts of the shadow afore found, or neere vnto it: vnder or ouer the which the houre is set, before or after noone. Note ye two pricks there, signifie halfe a part more then is noted: one pricke, halfe a part lesse. Here it is also to be noted, that euery table hath within, two rowes of figures: the vppet is for the Staffe, the other for the Squire shadow. And whatsoeuer is before said of the one, that same is meant here of the other, seuing of the Composition.

The Squire must be diuided from the inward angle to the ende of one side, in 12. equall parts: euen so from that angle the other side into 24. like parts, as this figure sheweth.



These to the wittie suffice.

The composition of an Instrument for the houre of the night: which is also a perfect Diall for the day, and excellent for the Mariner.

The taking of an Altitude supposed, I could exactly in few (and that without an Instrument) satisfie. For want of that knowledge,

ledge, make vpon a plaine boord, or rather fine plate, a Circle: the bigger the better: part it into 360. portions, thus.

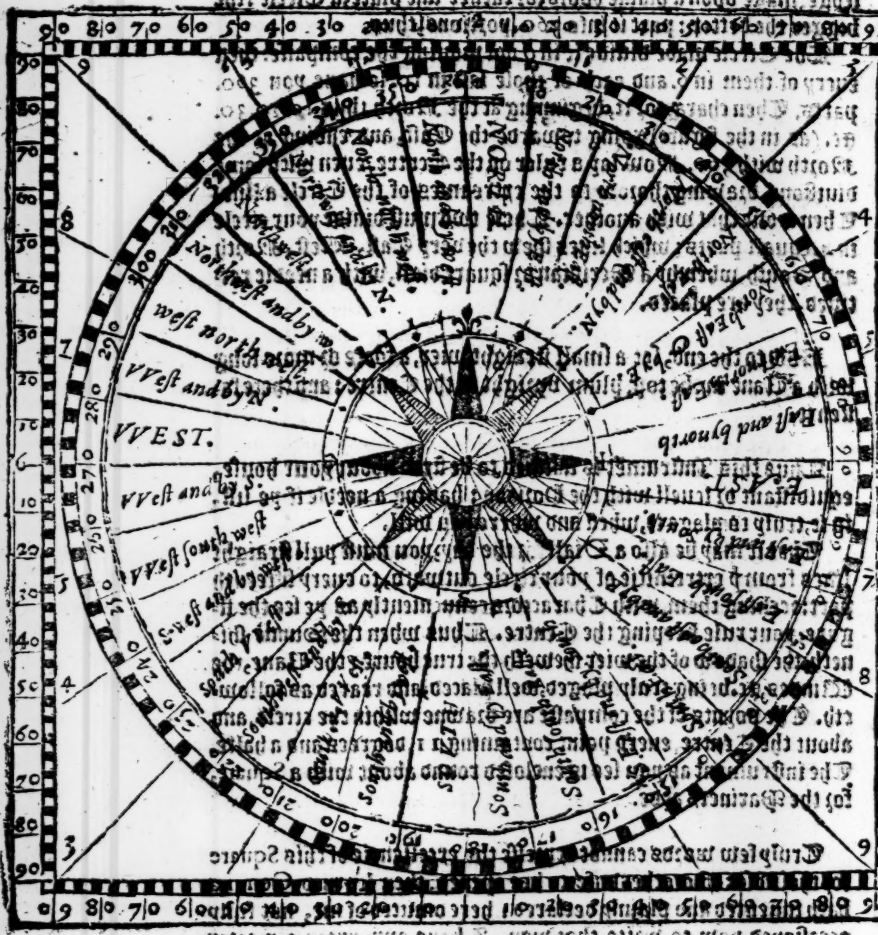
The Circle made diuide it in 6. not mouing the compasse: then euery of them in 6. and each of those last in 10. so haue you 360. parts. Then charactor it, beginning at the North thus, 10. 20. 30. &c. (as in the figure) going towarde the East, and ending at the North with 360. Now lay a ruler on the Centre, euen with some diuisions, drawing thorow to the extreames of the Circle a line. Then crosse that with another. These two must diuide your circle in 4. equall parts: which lines shew the very East, West, North and South, when by a Meridian or square diall, with a needle rectified, they are placed.

Now to the end, set a small straight wier, a foote or more long with a Vane in the top, plum vpright in the Centre: and there fasten it.

Thus this Instrumēt is finished to be fixed about your house, equidistant or leuell with the Horizon: hauing a needle if ye list, in it, truly to plage it, when and where you will.

That it may be also a Diall for the day, you must pull straight lines from ẏ extremitie of your circle outward, to euery fifteenth part: decking them with Charactors conueniently as ye see the figure, your rule keeping the Centre. Thus when the Sunne shineth, the shadow of the wier sheweth the true houre: the Vane, the Windes, &c. being truly plaged, well placed, and reared as followeth. The poynts of the compasse are drawne within the circle, and about the Centre, euery point containing 11 degrees and a halfe. The instrument as you see is enclosed round about with a Square, for the Mariners ayde.

Truly few words cannot expresse the excellencie of this Square for the [illegible] to bee opened, then learned Gemma hath inuented and plainly declared: here omitted of me, not fully occasioned now to write that way. I haue appoynted a meeter place for this and like matter. In the meane time I am readie in word and deede, to further the desirefull in this, or any other.



Beholde this Instrument for Nauigation most commodious, the vse of which is here only put forth according to my inuention.

The right rearing and placing of the Diall tofore mentioned.

LIft vp handſomely your Inſtrument or Diall towarde the Noꝛth in ſome meete place, the ſide of a Squire lying on it, vntill the plummet and line, centred in the extreame vpper part of the other ſide of your Squire like long, cut all that Squire ſide which lieth on your Inſtrument, the firſt part onely except: Then moue your Inſtrument, hither and thither, this or that way, vntill the ſhadow of the wire fall vpon the houre of the day, keeping diligently your height befoꝛe. Your Diall thus fixed, declareth al the yeare long, the exact houre and parts thereof. No Diall in truth excelleth this. Haue in remembꝛance, that this Inſtrument muſt lie leuell, nothing at al reared, foꝛ the houre of the night by ſtarre.

In winter the cõtrary ſuperficies or Plain, ſheweth the day houre frõ ♎ to ♈

To get the exact houre by two Starres of the firſt light, with an Inſtrument or Circle, tofore diuided, firſt of me inuented, calculated and practiſed.

THe Inſtrument equidiſtantly ſet and plaged, as is declared in the compoſition, ye ought to lay the edge of a ruler vnto the wire, the other neather end toucing the Inſtrument, mouing here and there ſtill touching the wire, vntill either Starre doth offer it ſelfe with that edge, and that by the iudgement of the eye. Then put downe diſcreetly your ruler (euer touching the wire) the hinder ende not moued, obſeruing how many parts are cut from the Noꝛth, to the edge of the Ruler. Enter with them the peculiar Kalendar following: ſeeking out your moneth, placed in the middeſt of euery Table: then the day of that moneth muſt bee there found.

Fit filo aut digito, abſque regula exactiſſimè.

Note that euery table hath on the ſides, the daies thus oꝛdered 1.5.10.15.20.25.30. Knowe, the oꝛder oꝛ row of figures which is right againſt, oꝛ neereſt your day, ſeruеth the turne. The number oꝛ parts befoꝛe cut by the Ruler, and now found in the row of your table, ſheweth the preciſe houre. If it be too little, that houre ouer the head oꝛ vnder is not yet come: if contrarie, it is paſt.

How these two bright starres, being of the first light, are found: the one called Aldebaran or Oculus Tauri, the other Alramech.

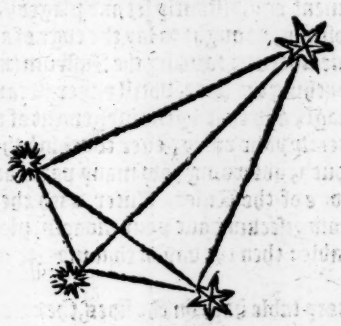
By what meanes these Starres are knowne.

THe best way is thus: The moneth and day knowne with the true houre of the night, enter your Table considering that moneth and day, obserue what parts belongeth there to that starre and houre. Then resort to your Instrument, laying the edge of your ruler, as many parts from the North Eastward, circumspectly lifting vp the edge close by the wire, so the fayre starre shineth euen with that edge.

Or thus grosly.

Another way to finde them.

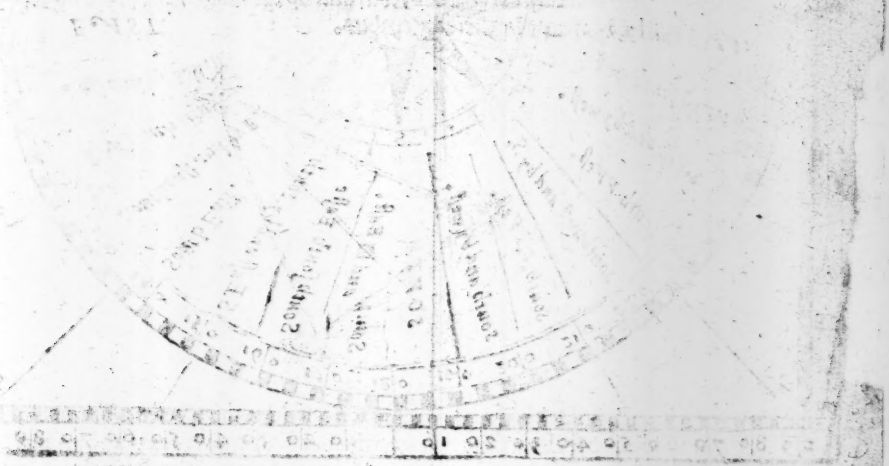
OCulus Tauri is euer a meete rod and a halfe to the eye vnder the seuen starres, and somewhat North of them in the rising: Alramech is contrarie to him placed, accompanied with three little dimme starres, a rod from him by the iudgement of the sight: in the forme of a Triangle, thus.



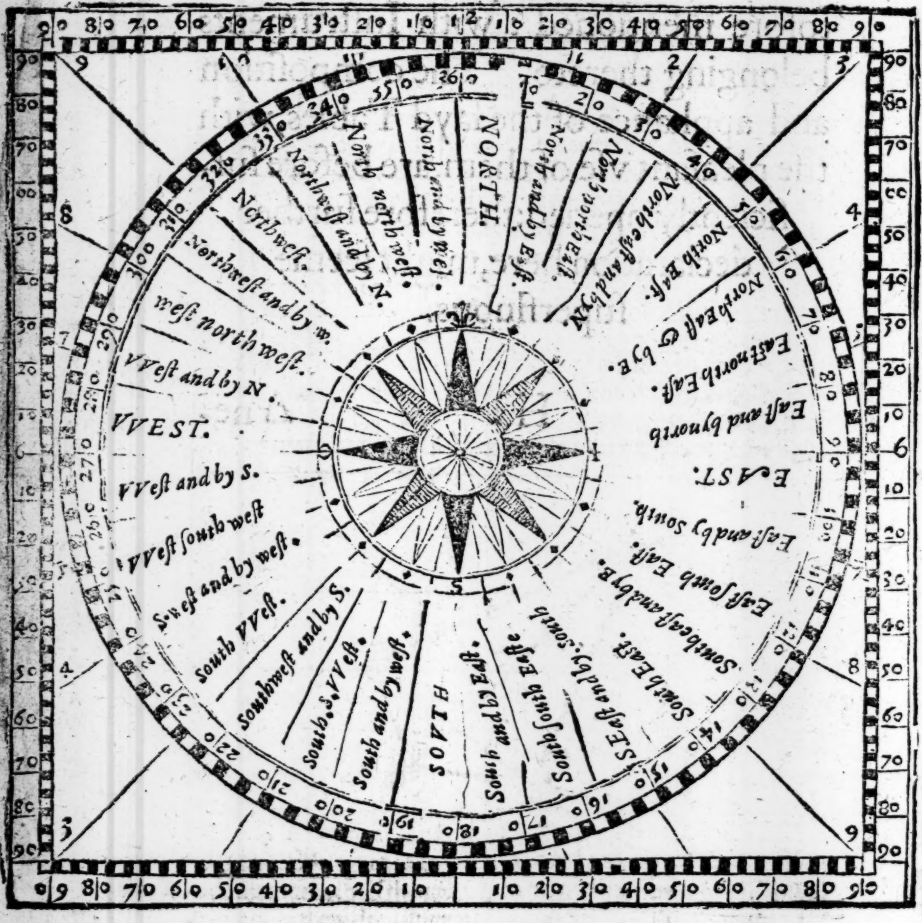
Behold this figure: the great Starre dooth represent Alramech: the other three the Triangle, which is placed alwayes with him, but commonly there doth appeare but one Starre of the Triangle.

Now

NOW ENSVETH THE needfull, neceſſarie, peculiar Kalendar tofore mentioned: with Inſtruments belonging thereto. The compoſition and appliance of the ſayd Tables, with the pleaſant vſe of them, are before ſufficiently opened: therefore further declaration here, might ſeeme ſuperfluous.



A neceſſarie Inſtrument, to finde exactly the houre of the day and night diuers wayes, with the helpe of this peculiar Kalendar.



For the night. — *From euening to midnight.*

	5	6	7	8	9	10	11	12				
1	108	113	143	165	190	213	59	79				
5	112	129	150	172	197	220	63	47				
10	113	136	158	183	206	227	68	78				
15	123	144	166	192	214	233	71	81				
20	130	151	173	199	220	239	75	86				
25	137	158	183	207	228	244	79	90				
30	144	165	191	213	233	249	82	91				

Oculus Tauri.

Ianuary hath xxxj. dayes.

From midnight vnto day.

81	93	105	121	143	168	196						1
86	96	110	127	151	177	205						5
89	101	116	135	160	139	214						10
93	105	122	143	169	198	213						15
98	111	128	152	179	207	230						20
10	116	135	159	190	216	286						25
190	121	144	168	193	222	242						30
1	2	3	4	5	6	7						

Alramech.

For the day.

		12	11	10	9	8	7				H	
10	*Staffe*	26	39	49	83	550	0				*ſhad.*	0
	Squire	4	4	3	2	0	0				*ſhad.*	
	H	0	1	2	3	4	5					

Alramech.

		12	11	10	9	8	7				H	
20	*Staffe*	32	34	42	65	209	0				*ſhad.*	10
	Squire	4	4	3	2	1	0				*ſhad.*	
	H	0	1	2	3	4	5					

		12	11	10	9	8	7				H	
30	*Staffe*	27	29	35	119	0					*ſhad.*	0
	Squire	5	5	4	3	1					*ſhad.*	
	H	0	1	2	3	4	5	0				

gr. xx

Oculus Tauri.

Alramech.

Alramech.

For the night.

From midnight vnto day.

From euening to midnight.

	6	7	8	9	10	11	12	
1	169	194	216	62	73	83	95	
5	174	199	222	64	25	86	98	
10	184	207	228	68	79	70	102	
15	191	214	234	71	82	94	106	
20	198	220	233	75	86	93	111	
25	205	226	243	78	88	110	116	
30								

February hath xxviij. dayes.

	108	124	146	172	201	225		1
	111	129	153	180	207	231		5
	117	136	126	190	216	227		10
	122	144	169	158	223	213		15
	128	152	278	206	230	248		20
	134	159	188	214	236	252		25
								30
	1	2	3	4	5	6		

For the day.

8 Staffe / Squire / H

12	11	10	9	8	7	H
23	25	30	42	80	6	6
6	6	5	3	2	0	
0	1	2	3	4	5	

shad. / shad. } 0

18 Staffe / Squire / H

12	11	10	9	8	7	H
20	21	25	54	61	226	
7	7	6	4	2	1	
0	1	2	3	4	5	

shad. / shad. } 10

28 Staffe / Squire / H

12	11	10	9	8	7	H
17	18	22	29	45	112	
8	8	6	5	3	1	
0	1	2	3	4	5	

shad. / shad. } 20

gr. ✕

For the Night.

	7	8	9	10	11	12			
1	50	70	81	93	15	120			
5	62	74	84	95	108	125			
10	65	76	87	99	113	131			
15	69	86	91	103	118	138			
20	72	83	94	107	123	146			
25	75	86	98	112	129	153			
30	80	90	102	117	136	161			

From euening to midnight.

Alramech.

March hath xxxj. dayes.

142	168	196	222	241					1
47	173	201	227	245					5
155	183	210	232	250					10
63	192	218	238	255					15
71	200	225	243	259					20
180	208	232	249	262					25
191	26	237	254	267					30
1	2	3	4	5	6				

From midnight vnto day.

Alramech.

For the day.

		12	11	10	9	8	7			H	
11	Staffe	15	16	19	24	37	74			shad.	0
	Squire	9	9	8	6	4	2			shad.	
	H	0	1	2	3	4	5				
		12	11	10	9	8	7	6		H	
21	Staffe	13	14	16	21	30	54	221		shad.	10
	Squire	11	10	9	7	5	2	1		shad.	
	H	0	1	2	3	4	5	6			
		12	11	10	9	8	7	6		H	
31	Staffe	11	12	14	18	26	43	112		shad.	20
	Squire	12	12	10	8	5	3	1		shad.	
	H	0	1	2	3	4	5	6			

gr. ♈

Alramech.

For the night. From midnight vnto day. From euening to midnight.

	6	7	8	9	10	11	12							
1	92	104	118	138	164									1
5	94	107	123	145	171									5
10	98	111	129	153	180									10
15	101	117	125	160	189									15
20	106	122	144	168	198									20
25	111	128	152	178	207									25
30	117	135	159	189	215									30

Aprill hath xxx. dayes.

103	218	230	255										1
199	225	244	258										5
207	231	248	262										10
215	236	253	266										15
223	243	257	270										20
230	248	262	274										25
236	252	266	278										30
1	2	3	4	5									

Alramech.

For the day. gr. 8

		12	11	10	9	8	7	6		H	
10	Staffe	0	11	13	16	23	36	76		shad.	0
	Squire	14	13	11	9	6	4	2		shad.	
	H	0	1	2	3	4	5	6			

		12	11	10	9	8	7	6		H	
21	Staffe	9	9	11	15	21	31	58	267	shad.	10
	Squire	16	15	12	9	7	4	2	1	shad.	
	H	0	1	2	3	4	5	6			

		12	11	10	9	8	7	6	5	H	
31	Staffe	8	8	10	14	19	28	49	139	shad.	20
	Squire	18	17	14	10	7	5	3	1	shad.	
	H	0	1	2	3	4	5	6	7		

	8	9	10	11	12			
1	117	136	160	190	216			
5	120	142	168	196	222			
10	128	152	178	206	230			
15	134	159	188	214	235			
20	143	168	169	222	211			
25	151	177	206	230	248			
30	160	189	215	235	253			

From euening to midnight.

May hath xxxj. dayes.

237	253	267	278					1
241	256	269	280					5
247	261	273	285					10
252	266	278	288					15
257	270	281	292					20
262	274	285	296					25
266	278	288	300					30
1	2	3	4	5				

From midnight vnto day.

For the Night.

Alramech.

For the day.

		12	11	10	9	8	7	6	5		
12	Staffe	7	8	10	13	17	26	43	100	H	
	Squire	20	18	15	11	8	5	3	1	shad.	1
	H	0	1	2	3	4	5	6	7	shad.	

		12	11	10	9	8	7	6	5	4		
22	Staffe	7	7	9	12	17	24	39	82	2580	H	
	Squire	21	19	15	12	8	6	4	2		shad.	10
	H	0	1	2	3	4	5	6	7	8	shad.	

		12	11	10	9	8	7	6	5			
32	Staffe	6	7	9	12	16	23	37	74	565	H	
	Squire	22	20	16	12	9	6	4	2		shad.	20
	H	0	1	2	3	4	5	6	7		shad.	

gr. II

Alramech.

For the night.

From midnight vnto day.

	8	9	10	11	12				
1	161	191	261	237	254				
5	169	197	223	242	257				
10	180	207	231	249	262				
15	191	216	237	254	267				
20	199	224	243	258	271				
25	207	231	249	262	275				
30	216	237	254	267	279				

From euening to midnight.

Iune hath xxx. dayes.

Alramech.

1	269	279	290	301					
5	270	282	292	303					
10	274	285	297	308					
15	279	290	301						
20	283	293	304						
25	286	297	308						
30	290	301	382						

1 2 3 4 5

For the day.

1 Staffe / Squire / H

12	11	10	9	8	7	6	5	4	H
6	7	9	12	16	23	37	74	565	shad.
22	20	16	12	9	6	4	2	0	shad.
0	1	2	3	4	5	6	7	8	

20 gr. H

12 Staffe / Squire / H

12	11	10	9	8	7	6	5	4	H
6	7	9	12	16	23	36	72	453	shad.
22	20	16	12	9	6	4	2	0	shad.
0	1	2	3	4	5	6	7	8	

0

23 Staffe / Squire / H

H	12	11	10	9	8	7	6	5	4
6	7	9	14	16	23	37	74	565	shad.
22	20	16	12	9	6	4	2	1	shad.
0	1	2	3	4	5	6	7	8	

10

gr. 9

For the Night.

	8	9	10	11	12				
1	219	239	255	263	280				
5	225	244	259	272	283				
10	233	250	264	275	286				
15	238	254	267	279	290				
20	243	258	271	283	293				
25	249	262	275	226	297				
30	254	267	279	290	300				

From euening to midnight. Alramech.

Iuly hath xxxj. dayes.

290	302	83						1	Alramech.
293	304	86						5	
267	79	90						10	
301	82	93						15	
304	86	98						20	
308	89	101						25	Oculus Tauri.
82	93	106						30	
1	2	3	4	5					

From midnight vnto day.

For the day.

		12	11	10	9	8	7	6	5	4	H	
3	Staffe	7	7	9	12	16	24	39	82	2580	shad.	20
	Squire	21	19	15	12	8	6	4	2		shad.	
	H	0	1	2	3	4	5	6	7	8		

		12	11	10	9	8	7	6	5	H	
14	Staffe	7	8	10	13	17	26	43	100	shad.	0
	Squire	20	18	15	11	8	5	3	1	shad.	
	H	0	1	2	3	4	5	6	7		

		12	11	10	9	8	7	6	5	H	
24	Staffe	8	8	10	14	19	28	49	139	shad.	10
	Squire	18	17	13	10	7	5	3	1	shad.	
	H	0	1	2	3	4	5	6	7		

gr. ♌

Alramech.

Oculus Tauri.

Oculus Tauri.

For the night.

From midnight vnto day.

From euening to midnight.

	8	9	10	11	12				
1	255	267	279	291	302				1
5	259	272	284	294	304				5
10	263	275	286	297	79				10
15	267	279	290	300	81				15
20	270	282	292	303	86				20
25	274	285	296	303	88				25
30	278	288	299	81	92				30

Auguſt hath xxxj. dayes.

	82	94	107	122	141				1
	86	98	111	126	146				5
	89	102	116	132	154				10
	93	105	119	138	160				15
	96	110	125	144	167				20
	100	114	130	152	174				25
	104	118	136	158	183				30
	1	2	3	4	5				

For the day.

3 Staffe / Squire

12	11	10	9	8	7	6	5	H
9	9	11	15	21	31	58	207	shad.
16	15	12	9	7	4	2	0	shad.
H	0	1	2	3	4	5	6	7

20 gr. ſ.

14 Staffe / Squire

12	11	10	9	8	7	6	H
10	11	13	16	23	36	72	shad.
14	13	11	9	6	4	2	shad.
H	0	1	2	3	4	5	6

0

24 Staffe / Squire

H	12	11	10	9	8	7	6	
	11	12	14	18	20	43	111	shad.
	12	12	10	8	5	3	1	shad.
H	0	1	2	3	4	5	6	

10 gr. m

For the night. From euening to midnight.

	7	8	9	10	11	12							
1	267	279	290	301	82	93							1
5	270	281	292	303	85	96							
10	273	285	296	307	88	100							
15	271	287	293	80	91	104							1
20	208	291	302	83	94	103							1
25	284	295	305	87	99	105							1
30	287	297	80	91	103	117							1

Alramech.

Oculus Tauri.

September hath xxx. dayes.

From midnight vnto day.

	106	120	139	161	186								1
	109	124	144	166	192								5
	113	129	150	173	199								10
	117	135	155	180	204								15
	123	142	164	189	212								20
	128	149	171	195	219								25
	134	155	180	204	215								30
	1	2	3	4	5	6							

Oculus Tauri.

For the day.

		12	11	10	9	8		H			
3	Staffe	13	14	16	21	30	54	221		shad.	20
	Squire	11	10	9	7	5	3	0		shad.	
	H	0	1	2	3	4	5	6			

gr. mp

		12	11	10	9	8	7	H			
14	Staffe	15	16	19	24	37	73			shad.	0
	Squire	9	9	8	6	4	2			shad.	
	H	0	1	2	3	4	5				

gr. lib

		12	11	10	9	8	7	H			
4	Staffe	17	18	22	29	45	112			shad.	10
	Squire	8	8	6	5	3	1			shad.	
	H	0	1	2	3	4	5				

Alramech.

Oculus Tauri.

Oculus Tauri.

For the night. From midnight vnto day. From euening to midnight.

	8	9	10	11	12				
1	255	267	279	291	302				
5	259	272	284	294	304				
10	263	275	286	297	79				
15	267	279	290	300	81				
20	270	282	292	303	86				
25	274	285	296	303	88				
30	278	288	299	81	92				

Auguſt hath xxxj. dayes.

	82	94	107	122	141				1
	86	98	111	126	146				5
	89	102	116	132	154				10
	93	105	119	138	160				15
	96	110	125	144	167				20
	100	114	130	152	174				25
	104	118	136	158	183				30
	1	2	3	4	5				

For the day.

3 Staffe / Squire / H

12	11	10	9	8	7	6	5	H
9	9	11	15	21	31	58	207	shad.
16	15	12	9	7	4	2	0	shad.
0	1	2	3	4	5	6	7	

20 gr. ♌

14 Staffe / Squire / H

12	11	10	9	8	7	6	H
10	11	13	16	23	36	72	shad.
14	13	11	9	6	4	2	shad.
0	1	2	3	4	5	6	

0

24 Staffe / Squire / H

H	12	11	10	9	8	7	6	
	11	12	14	18	20	43	111	shad.
	12	12	10	8	5	3	1	shad.
	0	1	2	3	4	5	6	

10 gr. ♍

	7	8	9	10	11	12							
1	267	279	290	301	82	93							
5	270	281	292	303	85	96							Alramech.
10	273	285	296	307	88	100							
15	271	287	293	80	91	104							
20	208	291	302	83	94	103							
25	284	295	305	87	99	105							Oculus Tauri.
30	287	297	80	91	103	117							

For the night. — *From euening to midnight.*

September hath xxx. dayes.

106	120	139	161	186								1	
109	124	144	166	192								5	
113	129	150	173	199								10	
117	135	155	180	204								15	
123	142	164	189	212								20	Oculus Tauri.
128	149	171	195	219								25	
134	155	180	204	215								30	
1	2	3	4	5	6								

From midnight vnto day.

For the day.

		12	11	10	9	8				H		
3	*Staffe*	13	14	16	21	30	54	221		*shad.*	20	gr. ♍
	Squire	11	10	9	7	5	3	0		*shad.*		
	H	0	1	2	3	4	5	6				

		12	11	10	9	8	7			H		
14	*Staffe*	15	16	19	24	37	73			*shad.*	0	gr. ♎
	Squire	9	9	8	6	4	2			*shad.*		
	H	0	1	2	3	4	5					

		12	11	10	9	8	7			H		
4	*Staffe*	17	18	22	29	45	112			*shad.*	10	
	Squire	8	8	6	5	3	1			*shad.*		
	H	0	1	2	3	4	5					

Alramech.

Oculus Tauri.

Oculus Tauri.

For the night. From midnight vnto day. From euening to midnight.

	6	7	8	9	10	11	12						
1	277	288	298	80	92	104	117						1
5	279	290	302	82	94	107	122						5
10	284	294	305	86	98	111	127						10
15	286	68	79	90	102	116	133						15
20	290	71	82	93	106	121	140						20
25	294	75	86	98	111	126	146						25
30	297	79	90	102	116	132	154						30

October hath xxxj. dayes.

	135	157	181	205	226	243							1
	141	262	288	210	231	247							5
	147	270	195	218	237	252							10
	154	178	202	225	242	256							15
	162	186	210	230	246	260							20
	169	194	217	235	251	264							25
	177	202	224	241	255	268							30
	1	2	3	4	5	6							

For the day.

	12	11	10	9	8	7				H		
4 Staffe	20	21	25	34	61	206				shad.	20	gr.
4 Squire	7	7	6	4	2	0				shad.		
H	0	1	2	3	4	5						

	12	11	14	9	8	7				H		
14 Staffe	23	25	30	42	79	6896				shad.	0	
14 Squire	6	6	5	3	2	0				shad.		
H	0	1	2	3	4	5						gr.

	12	11	10	9	8					H		
24 Staffe	27	29	35	19						shad.	10	
24 Squire	5	5	4	3	1					shad.		
H	0	1	2	3	4							

For the night. From euening to midnight.

	5	6	7	8	9	10	11	12					
1	287	298	80	92	104	117	135	156					1
5	290	302	82	94	107	122	147	163					5
10	294	305	87	98	111	127	147	171					10
15	298	80	91	103	117	135	156	180					15
20	303	83	95	108	123	142	165	189					20
25	307	88	100	113	129	105	173	198					25
30	81	92	104	119	136	158	183	206					30

Alramech.

Oculus Tauri.

Nouember hath xxx. dayes.

From midnight vnto day.

1	182	205	226	243	257	270	281	292					1
5	188	211	231	248	261	273	285	296					5
10	196	218	237	252	265	277	288						10
15	204	225	243	257	269	281	292						15
20	213	232	248	261	274	285	297						20
25	220	238	253	266	278	290	127						25
30	227	244	258	270	282	293	135						30
	1	2	3	4	5	6	7	8					

Oculus Tauri.

For the day.

		12	11	10	9	8				H		
2	Staffe	32	34	42	65	209				shad.	20	gr. m
	Squire	4	4	3	2	1				shad.		
	H	0	1	2	3	4						

		12	11	10	9	8				H		
13	Staffe	36	39	49	83	550				shad.	0	gr. ♐
	Squire	4	4	3	2	0				shad.		
	H	0	1	2	3	4						

		12	11	10	9					H		
22	Staffe	40	45	57	104					shad.	10	
	Squire	3	3	2	1					shad.		
	H	0	1	2	3							

Oculus Tauri.

Oculus Tauri.

Alramech.

For the night.

From evening to midnight.

	5	6	7	8	9	10	11	12					
1	81	92	115	119	136	158	183	107					
5	84	96	109	124	144	166	192	214					
10	89	11	115	132	153	173	201	222					
15	93	10	120	139	161	186	209	230					
20	98	111	127	147	169	191	217	236					
25	152	116	133	154	177	202	224	242					
30	107	122	141	163	188	211	231	248					

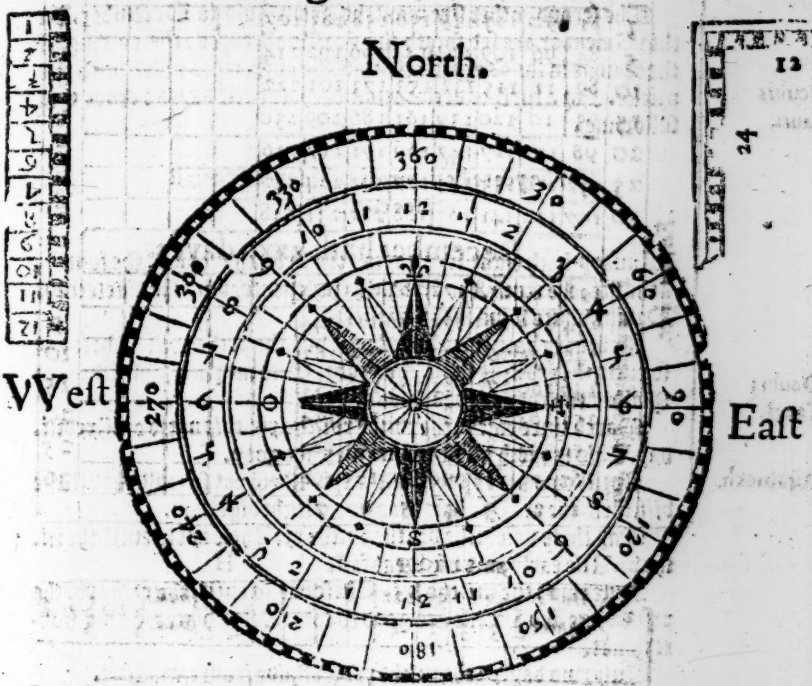
December hath xxxj. dayes.

From midnight vnto day.

	228	244	258	271	283	293	135						1
	234	259	263	275	286	122	144						5
	240	255	267	279	291	129	163						10
	246	260	272	284	265	138	153						15
	251	264	276	287	124	147	134						20
	256	263	280	291	132	155	184						25
	261	273	285	296	140	165	194						30
	1	2	3	4	5	6	7						

For the day.

		12	11	10	9							
2	Staffe	43	47	92	122					shad.	20	gr. ♐
	Squire	3	3	2	1					shad.		
12	Staffe	45	49	65	131					shad.	0	
	Squire	3	3	2	1					shad.		
22	Staffe	43	47	62	122					shad.	10	gr. ♑
	Squire	3	3	2	1					shad.		
31	Staffe	40	45	47	104					shad.	20	
	Squire	3	3	2	1					shad.		
		H	0	1	2	3						



Thus endeth the Peculiar Kalendar, very commodious for the day and night houre. I here adioyned the Instrument without the Square, which may suffice for the whole vse of the foresayd Kalendar, with the helpe of the Squire and Staffe.

I May not here omit a Kalendar generall diuided into two parts, whereof the first containeth sixe moneths, from Ianuary to Iune:

The second, other sixe moneths, from July to December. In this Kalendar are set foorth the Feastiuall dayes, the entring of the Sunne in the Signes celestiall, the euill dayes noted with one pricke. For a further declaration of those euill dayes: reade this following.

The yeare hath xxxiij. euill dayes generall for euer.

IAnuary hath eight such dayes: the first, the second, the fourth, the fift, the tenth, the fifteenth, the seuenteenth, the nineteenth. Drinke white wine in this moneth.

February hath three dayes: the viii. the x. the xvii. These not so euill, the xxvi. the xxvii. the xxviii. Eate no potage of Okes, or Mallowes: they are venomous.

March three daies: the xv. the xvi. the xix. this not so euil, xxviii. day. This moneth all sweete meates are good.

Aprill two dayes: the xvi. the xxi. These not so euill, the vii. the viii. the x. the xx. Use hote meates, of light digestion.

May three daies: the vii. the xv. the xx. These not so euill, the iii. the vi. Rise early, and vse breakfast.

June two: the iiii. the vii. These not so euill, the x the xv. the xvii. Sage and Lettise are good to eate. Colde water fasting hurteth not.

July two dayes: the xv. the xx. Abstaine from carnalitie.

August two dayes: the xix. the xx. These not so euill, the i. the xix. the xxx. It hurteth not to abstaine from potage, and all hote meates, and drinkes of spicerie.

September two dayes: the vi. the vii. These not so euill, the iii. the iiii. the xxi. the xxii. Eate good fruite.

October one day: the vi. These not so euill, the iii. the xvi. the xviii. Good wine is wholesome this moneth.

Nouember two dayes: the xv. the xix. These not so euill, the v. the vi. the xxviii. the xxix. Bleede not.

December three dayes: the vi. the vii. the ix. These dayes not so euill, the xv. the xvii. the xxii. Bleede not ouer much. Warme not thy legges at the fire.

Now

The first part of the generall Kalendar: from Ianuarie to Iune.

Ianuarie.	Februarie.	March.	Daies	April.	May.	Iune.
:A Circūci.	d	d	1	g	b Phi. Iac.	e
:b	e Purifi.	e	2	A	c	f
c	f	f	3	b	.d	g
:d	g	g	4	c	e	:A
:e	A	A	5	d	f	b
f Epiph.	b	b	6	e	.g	c
g	c	c	7	.f	:A	:d
A	:d	d	8	.g	b	e
b	c ☉ in ♓	e	9	A	c	f
:c	:f	f	10	.b	d	.g
d ☉ in ♒	g	g ☉ in ♈	11	c ☉ in ♉	e	A Barna.
e	A	A Spring.	12	d	f ☉ in ♊	b ☉ in ♋
f Hilar.	b	b	13	e	g	c Simer.
g	c Valen.	c	14	f	A	d
:A	d	:d	15	g	:b	.e
b	e	:e	16	:A	c	f
:c	:f	f	17	b	d	g
d	g	g	18	c	e	A
e	A	:A	19	d	f	b
f	b	b	20	.e	:g	c
g	c	c	21	:f	A	d
A	d	d	22	g	b	.e
b	e	e	23	A Georg.	c	f
c	f Math.	f	24	b	d	g Iohan.
d Cō. Pau.	g	g Anun.	25	c Marc.	e	A
e	A	A	26	d	f	b
f	.b	b	27	e	g	c
g	.c	.c	28	f	A	d
:A		d	29	g	b	e Pe. Pa.
b		e	30	A	c	f
c		f	31		d	

¶ The seconde part of the generall Kalendar: from Iulie to December.

Iuly.	Auguſt.	Septemb.	Dayes	October.	Nouem.	Decem.
g	c Pet. Vin.	f	1	A	d Om. ſa.	f
A	d	g	2	b	e Om. an.	g
b	e	A	3	c	f	A
c	f	b	4	d	g	b
d	g	c	5	e	A	c
e Dog beg.	A	d	6	f	b	d Nico.
f	b	e	7	g	c	e
g	c	f Na. Ma.	8	A	d	f Cõ. ma.
A	d	g	9	b	e	g
b	e	A	10	c	f	A
c	f	b	11	d	g	b
d	g	c	12	e	A	c ☉ in ♐
e	A	d	13	f	b ☉ in ♑	d wynter.
f ☉ in ♌	b ☉ in ♍	c ☉ in ♎	14	g ☉ in ♏	c	e
g	c	f Hereſi.	15	A	d	f
A	d	g	16	b	e	g
b	e Dog end	A	17	c	f	A
c	f	b	18	d Luc.	g	b
d	g	c	19	e	A	c
e	A	d	20	f	b	d
f	b	e Mathe.	21	g	c	e Tho. ap.
g Ma. mag.	c	f	22	A	d	f
A	d	g	23	b	e	g
b	e Bartho.	A	24	c	f	A
c Luc. Apo.	f	b	25	d	g	b Na. do.
d	g	c	26	e	A	c Steph.
e	A	d	27	f	b	d Io. cuã.
f	b	e	28	g Si. Iud.	c	e Innocc.
g	c decol. Io.	f Micha.	29	A	d	f Tho.
A	d	g	30	b	e Andre.	g
b	e		31	c		A

To the briefe vse of this generall Kalendar.

ENter the Columne where your Moneth is noted in the head, ye shall there finde running downe the columne the Festiuall dates of that Moneth, the entrie of the Sunne in the celestiall signes, the cuill dayes pricked &c.

I would haue placed in this Kalendar the Fayres and Termes also: but that cannot remaine continually true. For those that ensue moueable Feasts are moueable, and therefore may haue no certaine place. For the Termes also, note these precepts following. The Fayres shall be declared by two Tables immediatly ensuing this Kalendar Generall.

How to know the Termes.

KNow that Easter Terme alwayes beginneth the 18. day after Easter, reckoning Easter day for one: and endeth the Monday next after the Ascension day.

Trinitie Terme beginneth the Friday next after Corpus Christi day, and endeth the Wednesday fourtnight after.

Michaelmasse Terme beginneth the 9. or 10. day of October: and endeth the 28. or 29. of Nouember.

Hillarie Terme beginneth the 23. or 24. day of Januarie: and endeth the 12. or 13. day of Februarie.

FINIS.

Generall Fayres.

A Table contayning the Moneth, day, and place of the principall Fayres of England, to be augmented at pleasure, in order following.

Ianuary. The first day of January, the faire is at Bzittow, and also at Salisburie. The first of Lent at Exceter.

February. The second day at Bathe, at Maidstone. The 14. at Feuersame. On Ashwednesday at Lichfield, at Roystone, at Tamworth. The first Monday in Lent, at Cicster, at Abington. The 24. at Henley vpon Thames, at Teukesburie.

March. The 4. Sunday in Lent, at Stamforth, at Sudburie. The fift Sunday, at Grantam. The Monday before our Lady day, at Salisburie. Palme eeuen, at Wilbitch. The 13. at Wie. The 25. at Northamton, at great Chare, at Waulden.

Aprill. The 5. day at Wallingford. The 7. at Darby. The 9. at Bickellworth, at Billingsworth. At Ealam the Monday after. The Sunday after Easter, at Louth. The 23. at Charing, at Ipswich, at Amtill, at Hinigam, at Gilford. The 25. at Darbie. The 26. at Tenterden.

May. The 1. day, at Stow the old, at Reading, at Maidstone, at Leicester, at Chensford. The 8. day at Beuerley. Ascension day, at Bzimingham, at S. Edes, at Bishops Stratford. Whitsunday, at Kingstone vpon Thames, Trinitie Sunday, at Rowell. At Cranebzoke the 19. day. The 27. day at Lenham.

Iune. On Corpus Christi day, at Couentrie, S. Edes, at Bishop Stanford, at Rosse. The 9. at Maidstone. The 11. at Okingam. The 23. at Shzowlsbury, at S. Albones. The 24. at Cambzidge, at Glocester, at Lincolne, at Windsore, at Colchester. The 29. at Wollerhampton, at Peterboxrow. The 17. at Folkstone. The 24. at Parisam. The 8. at Hetcorne.

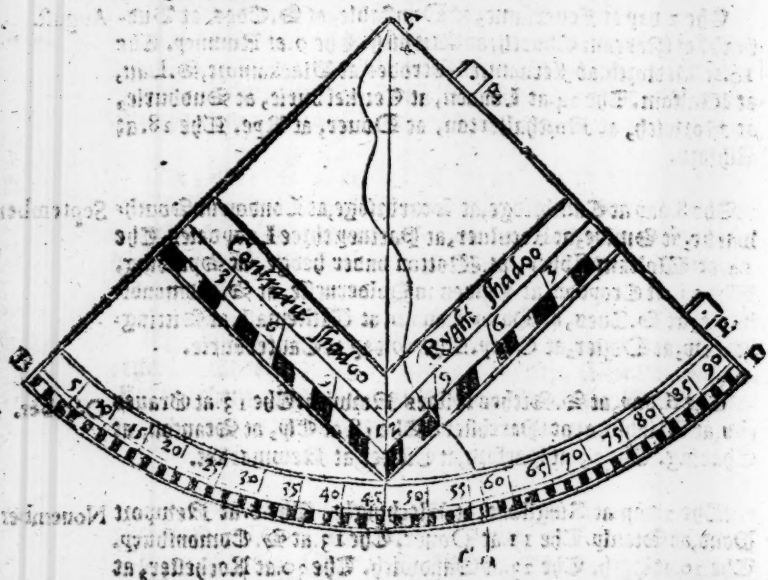
A Table contayning the Moneth, day, and place of the principall Fayres of England: to bee augmented at pleasure, in order following.

The 11. day, Horse fayre at Partney, at Naboy, at Felix. The 12. day at Lid. The 15. at Pinchbacke. The 17. at Winchcome. The 20. at Uxbridge, at Catesby. The 22. at Marleborowe, at Winchester, at Colchester, at Tetburie. The 25. at Brikkow, at Douer, at Chilham, at Ipswich, at Northampton, at Darbie, at S. James by London, at Reading, at Louth, at Palmsburie.	July.
The 1 day at Feuersame, at Dunstable, at S. Edes, at Budforth, at Marram Church, at Wisbich. The 9. at Rumney. The 10. at Bedforth, at Fernam, at Stroves, at Blackamore, S. Lau, at Waltom. The 24. at London, at Tenkesburie, at Sudburie, at Norwich, at Northallerton, at Douer, at Rye. The 28. at Alhford.	August.
The 8. day at Cambridge, at Sturbridge, at London in Southwarke, at Sunde, at Reculuer, at Partney three Lady dayes. The 14. at Waltam Abbey, at Wotton under hedge, at Spalding. The 21. at Croydon, at Holden in Holdernesse, at S. Edmondsburie, at S. Iues, at Haldy Lanam, at Wilremall, at Sittingborow, at Douer, at Ellry. The 29. day at Canterburie.	September.
The 6. day, at S. Sithes beside Norwich. The 13. at Graues end, at Windsore, at Marchfield. The 18. at Ely, at Stanton, at Charing. The 23. at Harford, at Ciciter, at Newmarket.	October.
The 2. day at Kingstone, at Blechingly. The 6. at Newport Pond, at Stanly. The 11. at Douer. The 13. at S. Edmonsbury. The 20. at Hyth. The 23. at Sandwich. The 30. at Rochester, at Haydenhead.	November.
The 29. at Canterbury. The 5. at Pluckly. The 6. at Spalding. The 7. at Sandhurst.	December.

Because

BEcause I vnderstand many are desirous how to get exactly the iust length of Staffe and Squire shadowe before treated of, vpon vnleuell grounds, or otherwayes whereſoeuer it be, yea, without either Squire or Staffe: I haue calculated a Table following throughly ſatiſfying them, ſo that they get the height of the Sunne any way: or as I ſhall now inſtruct.

Behold this Inſtrument called a Quadrant the iuſt fourth part of a Circle, euenſuch a Circle as I taught you before to make for the night Dial: containing the fourth part of his diuiſions, that is 90. degrees, only two ſights and a plum line added, to be placed at the beginning of this booke, as ye may there, and here ſee. I haue here alſo put the Scale to the Quadrant, which ſerueth wel for ſhadowes, and as well for heights. The vſe of this Scale is declared in my booke called Tectonicon.



How by this Inſtrument to get the height of the Sunne at all times.

LIft vp handſomely your Quadrant, the Sunbeames perſing the ſights. The Plummet and Line then at libertie falling, noteth there the degrees of height at that preſent, with the which ye ſhall enter this table immediatly following, to get them, and in like māner at all other times, the iuſt ſhadow of the Staffe or Squire.

A table

A Table generall of Shadowes, right and contrary, for euery grade of the Sunnes heyght: The thinge causing Shadowe, supposed 12 partes.

Heyght of the Sunne.		Staffe. Shadow.		Heyght of the Sunne.		Staffe. Shadow.		Heyght of the Sunne.		Staffe. Shadowe
G	g	P	M	G	G	P	M	G	g	P M
0	90	Sha	m.	30	60	20	47	60	30	6 5 6
1	89	687	34	31	59	19	58	61	29	6 3 5
2	88	343	43	32	58	19	12	62	28	6 2 3
3	87	228	59	33	57	18	29	63	27	6 7
4	86	171	37	34	56	17	47	64	26	5 5 1
5	85	137	10	35	55	17	8	65	25	5 6
6	84	114	10	36	54	16	30	66	24	5 2 1
7	83	97	49	37	53	15	52	67	23	5 6
8	82	85	28	38	52	15	21	68	22	4 5 1
9	81	75	46	39	51	14	49	69	21	4 3 6
10	80	68	3	40	50	14	18	70	20	4 2 2
11	79	61	44	41	49	13	48	71	19	4 8
12	78	56	27	42	48	13	20	72	18	3 5 4
13	77	51	59	43	47	12	52	73	17	3 4 0
14	76	48	8	44	46	12	26	74	16	3 2 6
15	75	44	47	45	45	12	0	75	15	3 1 3
16	74	41	51	46	44	11	35	76	14	3 0
17	73	39	15	47	43	11	11	77	13	2 4 6
18	72	36	54	48	42	10	48	78	12	2 3 2
19	71	34	51	49	41	10	26	79	11	2 2 0
20	70	32	58	50	40	10	4	80	10	2 7
21	69	31	16	51	39	9	43	81	9	1 5 4
22	68	29	42	52	38	9	22	82	8	1 4 1
23	67	28	16	53	37	9	3	83	7	1 2 9
24	66	26	57	54	36	8	43	84	6	1 1 6
25	65	25	44	55	35	8	24	85	5	1 3
26	64	24	37	56	34	8	6	86	4	0 5 0
27	63	23	33	57	33	7	48	87	3	0 3 8
28	62	22	34	58	32	7	30	88	2	0 2 5
29	61	21	40	59	31	7	13	89	1	0 1 2
30	60	20	47	60	30	6	56	90	0	0 0

Heyght of the Sunne	Squire Shadow.	Heyght of the Sun.	Squier. Shadow.	Heyght of the Sunne	Squyre. Shadow

The vse of this Table, and first for staffe shadow.

Example.

I Suppose the height of the Sunne, taken by the Quadrant, 34. degrees: Now I require the exact length of Staffe and Squire shadow. For right shadow, first seeke out the degrees in the left part of the Table, and vnder this title the height of the Sun: if they be not in that left row downwards, resort to the next rowe and like title, vntill ye finde the degrees: then in right order toward the right hand, in the next Columne vnder the title of Staffe shadow, are 17. parts, and 47. minutes, your desire.

For Squire shadow, titled contrarie Shadow.

SEeke your degrees in the right part vpwarde, at this title Height of the Sunne, in the bottome of this Table: then shall ye finde on the right hand of 34 degrees, in the next columne, eight parts and fiue minutes: that is the very length of Squire shadow when the Sunne is 34. degrees in height.

OCcasioned I cannot here omit another Table faithfully supputated for the Sunnes altitude, by the which with quicke speede the houre is knowne. This Table conduceth manifolde wayes, yea, to the composition of diuers and many Instruments: as Quadrants, Nauicles, Cylindres, Rings, &c.

Behold now it doth ensue, and also the briefe vse of it.

A Table

A Table of the Sunnes altitude, for euery houre of the Pole mounted 51. degrees 30. Minutes, exactely calculated.

Houres before n. / Houres after n.	12 / 1		11 / 2		10 / 3		9 / 4		8 / 5		7 / 6		6 / 7		5 / 8		4 / 9	
S. G S C	G	M	g	M	g	M	g	M	g	M	g	M	g	M	g	M	g	M
30 ♋ 0	62	0	59	43	53	45	45	42	36	42	27	23	18	11	9	28	1	31
25 5	61	54																
20 10	61	37	59	21	53	26	45	24	36	25	27	6	17	54	9	9	13	
15 15	61	9																
10 20	60	30	58	17	52	28	44	32	35	35	25	16	17	3	8	16	0	16
5 25	61	41																
Ω 0 ♌ 0	58	42	56	34	50	55	43	6	34	13	24	56	15	41	6	0	0	0
25 5	57	34																
20 10	56	17	54	15	48	48	41	10	32	22	23	6	13	50	4	55	0	0
15 15	54	52																
10 20	53	21	51	26	46	12	38	46	30	6	20	52	11	34	2	34	0	
5 25	51	43																
♍ 0 ♎ 0	0	0	48	11	43	11	35	53	27	2	18	1	8	59	0	0		
25 5	48	12																
20 10	46	20	44	37	39	51	32	53	24	32	15	27	6	8	0	0		
15 15	44	25																
10 20	42	23	40	51	35	18	29	34	21	24	12	25	3	6	0			
5 25	40	23																
♐ 0 ♑ 0	38	3	36	58	32	37	26	7	18	8	9	16	0	0				
25 5	36	40																
20 10	34	32	32	4	28	55	22	33	14	51	6	7	0	0				
15 5	32	35																
10 20	30	40	29	16	25	18	19	14	11	32	3	21	0					
5 25	28	48																
♑ 0 ♒ 0	27	0	25	40	21	51	15	50	8	34	6	0						
25 5	25	17																
20 10	23	39	22	22	18	42	13	1	5	45	0	0						
15 15	22	8																
10 20	20	43	19	29	15	55	10	23	3	17	0							
5 25	19	26																
♒ 0 ♓ 0	18	18	17	6	13	38	8	3	1	15								
25 5	17	19																
20 10	15	30	14	48	11	55	6	35	0	0								
15 15	5	51																
10 20	15	23	14	13	10	52	5	36	0									
5 25	15	6																
♓ 0 ♈ 0	15	0	13	51	10	30	5	15										

When the Sunne entreth the 12 grade of ♋, he toucheth our Horizon in the morning, entring the 12 of ♑ he setteth at 6 in the fyne of ♈ in the first of ♎ at 7. Note in all my tables, one prickle following the Minutes, diuideth the two augmenteth some small quantitie.

The briefe vse of this Table.

SUppose the height of the Sunne taken by the Quadrãt, eight degrees and 13. minutes, the Sunne being in the beginning of Aquarie, or Sagittarie, I seeke, and find in this table and in the row which directly answereth ♒ and ♐ eight degrees and 13. minutes: that is agreeable to 9. or 3. of the clocke in the head of this Table. Therefore I pronounce, that when the Sunne was 8. degrees and 13. minutes in height, entring ♒ or ♐, it was precise nine of the clocke in the morning or three at after noone.

Thus at all times ye may know the iust houre.

Ye may also conclude the height of the Sunne at all times, the place of the Sunne knowne, and the houre. Note, when the precise numbers either of height, or degree of the Sunne are not found in the Table, then make proportion according to the difference &c. Practise, better then many words, openeth this. Now to ende this matter: this following to him that hath tasted these knowledges, I write.

Dato loco Solis & eius altitudine, horam ipsam calculare.

DVc sinum inuentæ solaris altitudinis, in sinum arcus semidiurni, & productum diuide per sinum altitudinis meridianæ eiusdem Solis, & prouenientis inde partium numeri sumito arcum, quem tandem in horas verte. Collectus horarum numerus quæsitam indicabit horam: ab ortu quidem Solis, si altitudo fuerit antemeridiana, vel ab occasu, si eadem Solis altitudo acciderit post meridiem.

NOw hauing some occasion, I could here adioyne a briefe Supputation Sinicall, touching most workings Astronomicall, but how farre that passeth the capacitie of the common sort of men, they that bee trauayled knowe. For this cause I leaue to giue any precepts this way: desiring prouocation meete to haue to doe in the like: then God suffering, my penne shall not stay to

open

open readie chosen generall wayes, for pleasant Astronomicall operation.

HEre shall now followe briefly collected certaine rules, performed before by Tables: but now done by quicke supputation, to bee had in memorie: by that, auoyding carpage or burthen of bookes.

A way to get the Golden number or Prime without a table.

ADde vnto the yeare of our Lord 1. then diuide that summe by 19. the remaine is the Prime or Golden number.

The Epact is thus euer found.

MUltiplie the Prime by 11. diuide by 30. the remaine is your desire. These two numbers begin at March, their vse is chiefly to finde out the chaunge, quarters and full Moone, as ensueth.

A rule for the Chaunge, Full, and Quarters of the Moone.

PUt vnto the Epact all the moneths from March, including the moneth of March: pull then that summe from 30. the remaine sheweth the day of the chaunge.

Here note the full Moone is the 15. day after the chaunge. Also if the remaine be lesse then 15. substract that lesse from 15. the rest is the full Moone.

If the remaine passe 30. substract it from 45. then the full doth also appeare.

To conclude, if from the full Moone ye pull 15. dayes, ye haue the chaunge going before. The chaunge had, the quarters are knowne, by adding or pulling away seuen dayes.

For the age of the Moone, worke thus for euer.

ADde to the dayes of your Moneth the Epact, and also as many dayes more as are moneths from March to your moneth, including both moneths. Now subtract thirtie, if ye may, the age then remaineth.

Now shall be declared what Signes and degrees the Moone differeth from the Sunne, by the which is gathered at all times, the Signe and Grade wherein she is.

MUltiplie the age of the Moone by 4. diuide by 10. the quotient sheweth the Signes that the Moone differeth from the Sunne. The remaine augmented by 3. bringeth degrees to be added. Ye must put these Signes and degrees to the place of the Sunne. The product, I meane the increase or ende of all these Signes and degrees in order counted from the Sunne, declare the place of the Moone in the Zodiacke.

The place of the Sunne in the Zodiacke is thus found.

FIrst know that the 11. day of January, the Sunne is entred into ♒. The 10. day of Febyuary ♓. The 11. of March ♈. The 11. of Aprill ♉. The 12. of May ♊. The 12. of June ♋. The 14. of July ♌. The 14. of August ♍. The 14 of September ♎. The 14. of October ♏. The 13. of November ♐. The 12. of December ♑.

This knowne, the place of the Sunne is well found, adding for euery day past any entrey, 1. degree.

Ex-

Example.

I Require the place of the Sunne the 21. day of August. I finde that the Sunne is entred in ♍ the 14 day of the moneth. I muſt for euery day paſt any entrie adde 1. degree. There are ſeuen daies paſt that entry, then I conclude the Sunne readie to haue place in the 8. degree of ♍ the 21. of August.

To know how long the Moone ſhineth.

FOr her ſhining in the increaſe, multiplie the age of the Moone by 4. In the wane augment the reſt of the age which ſhe lacketh of 30. by 4 and diuide by 5. The Quotient ſheweth the houres: the remaines if there be any, multiplied by 12. bringeth minutes to be added.

How the moueable feaſts are found readily.

SEeke the chaunge of the Moone in February, for that yeare yee require theſe moueable Feaſts. Note what day it falleth on, the next Tueſday is Shrouetueſday. But if the chãge be on Tueſday, the next Tueſday enſuing is it. The next Sunday is the firſt Sunday of Lent. Sixe Sundayes after is Eaſter day. Adde 35. dayes, or 5. weekes to Eaſter day, ye haue Rogation Sunday. To that adde 4 dayes, ſo ye haue Aſcenſion day. Then haue ye 10. daies to Whitſunday. Seuen dayes after is Trinitie Sunday. And foure dayes after is Corpus Chriſti day.

Without Tables, at all times to know the Tydes.

LEarne as is declared the age of the Moone: alſo remember the houre of the Full or Change, for your place or poynt which doth neuer varie: theſe knowne, worke thus.

Ex-

Example.

When the Moone is 10. dayes olde, I desire to know at what of the clocke it is full sea at London bridge. Multiplie 10. by fortie eight, so haue ye foure hundred eightie: diuide that by sixtie, ye haue eight houres. To that adde three, which is the houre of the full or chaunge appointed for that place. All then commeth vnto eleuen of the clocke high water at London bridge. If any thing remaine they are minutes of an houre.

If the houres amount aboue twelue,
cast the twelues away, the
rest is your request.

FINIS.

16 IY 6(

To the Reader.

HAuing of late (gentle Reader) corrected and reformed ſundry faultes that by negligence in printing haue crept into my Fathers *Generall Prognoſtication:* Among other things I haue founde a deſcription or Modill of the world,& ſituation of Spheres Cœleſtiall and elementary according to the doctrine of *Ptolomie*, whereunto all vniuerſities (led thereunto chiefely by the authoritie of *Ariſtotle*) ſithens haue conſented. But in this our age, one rare wit (ſeeing the continuall errors that from time to time more and more haue been diſcouered, beſides the infinite abſurdities in their Theoricks, which they haue been forced to admit that would not confeſſe any Mobilitie in the ball of the earth)hath by long ſtudy, painefull practiſe, and rare inuention deliuered a new Theorick or Modill of the world,ſhewing that the Earth reſteth not in the Center of the whole worlde,but not onely in the Center of this our mortall world or Globe of Elements, which enuironed and encloſed in the Moones Orbe, and together with the whole Globe of mortalitie is caried yearely round about the Sunne, which like a king in the middeſt of all raigneth and giueth lawes of motion to the reſt, ſphæricallydiſperſing his glorious beames of light through all this ſacred Cœleſtiall Temple. And the Earth it ſelfe to bee one of the Planets, hauing his peculiar and ſtrange courſes turning euery 24. houres round vpon his owne Centre: whereby the Sunne and great Globe of fixed ſtarres ſeeme to ſway about and turne, albeit indeede they remayne fixed. So many waies is the ſenſe of mortall men abuſed. But reaſon and deepe diſcourſe of wit hauing opened theſe things to *Copernicus*, and the ſame being with demonſtrations Mathematicall,moſt apparantly by him to the world deliuered: I thought it conuenient together with the olde Theorick alſo to publiſh this,to the end ſuch noble Engliſh mindes (as delight to reach aboue the baſer ſorte of men)

might not be altogether defrauded of ſo noble a part of Philoſophie. And to the ende it might manifeſtly appeare, that *Copernicus* ment not as ſome haue fondly excuſed him, to deliuer theſe grounds of the earths mobilitie, onely as Mathematical principles fayned, and not as Philoſophicall truely auerred: I haue alſo from him deliuered both the Philoſophical reaſons by *Ariſtotle* and others, produced to maintaine the Earths ſtabilitie, and alſo their ſolutions and inſufficiencie, wherein I cannot a little commend the modeſtie of that graue Philoſopher *Ariſtotle*, who ſeeing (no doubt) the ſufficiencie of his owne reaſons in ſeeking to confute the Earths motion, vſeth theſe words. *De his explicatum eſt, ea, qua potuimus facultate:* howbeit his diſciples haue not with like ſobrietie maintayned the ſame. Thus much for my own part in this caſe I wil only ſay. There is no doubt, but of a true ground, truer effects may be produced, then of principles that are falſe: and of true principles, falſhood or abſurdities cannot be inferred.

If therefore the Earth be ſituate immoueable in the Center of the world, why finde we not Theoricks vpon that ground to produce effects as true and certaine as thoſe of *Copernicus*? Why caſt wee not away thoſe *Circles Æquantes* and motions irregular? ſeeing our own Philoſopher *Ariſtotle* himſelfe the light of our Vniuerſities hath taught vs: *Simplicis corporis ſimplicem oportet eſſe motum.* But if contrarie, it bee found impoſſible (the Earths ſtabilitie being graunted) but that we muſt neceſſarily fall into theſe abſurdities, and cannot by any meane auoyde them: Why ſhall wee ſo much dote in the apparance of our ſences, which many waies may be abuſed, and not ſuffer our ſelues to be directed by the Rule of Reaſon, which the great God hath giuen vs as a lampe to lighten the darknes of our vnderſtanding, and the perfect guide to leade vs to the golden braunch of Veritie amidde the Forreſt of errors.

Beholde a noble Queſtion to bee of the Philoſophers and Mathematicians of our Vniuerſities, argued not with childiſh inuentions, but with graue reaſons Philoſophicall, and irreproueable Demonſtrations Mathematicall. And let vs not in matters of reaſon bee led away with authoritie and opinions of men, but with the Stellified Poet let vs ſay:

Non

Non quid Aristoteles vel quinis dicat eorum:
Dicta nihil moror, à vero cum forté recedunt.
Magni sæpè viri mendacia magna loquuntur.
Nec quisquam est adeo sagax, quin sæpius erret.

Ratio dux fida Sophorum.

THe Globe of Elements encloſed in the Orbe of the Moone, I call the Globe of Mortality, becauſe it is the peculiar Empire of death. For aboue the Moone they feare not his force: but as the Chriſtian Poet ſayeth,

Omne quod eſt ſupra lunam, æternumq́, bonumq́,
Eſſe ſcias: nec triſte aliquid Cœleſtia tangit.
Quicquid verò infra lunæ connexa creauit
Omniparens, natura malum eſt, mortiſq́, ſeueras
Perpetitur leges & edaci abſumitur æuo.

Againe.

Omne malum eſt infra lunam, nox atra, procella
Terribiles, frigus, calor, importuna ſenectus,
Pauperies maleſuada, labor, dolor, improbitas, Mors.
Supra autem lunam, lucis ſunt omnia plena,
Nec non lætitiæ & pacis, non tempus & error,
Et MORS, & ſenium eſt illic, & inutile quicquam.
Fœlix ô nimium Fœlix, cui ſedibus illis
Tam pulchris & tam iucundis tamq́, beatis
Viuere conceſſum eſt, ſupremi munere Regis.

And againe.

Singula nonnulli credunt quoque ſydera poſſe
Dici Orbes, Terramq́, appellant ſydus opacum,
Cui minimus Diuum præſit, &c.

In the middeſt of this Globe of Mortality hangeth this darke ſtarre or ball of the earth and water, balanced & ſuſtayned in the middeſt of

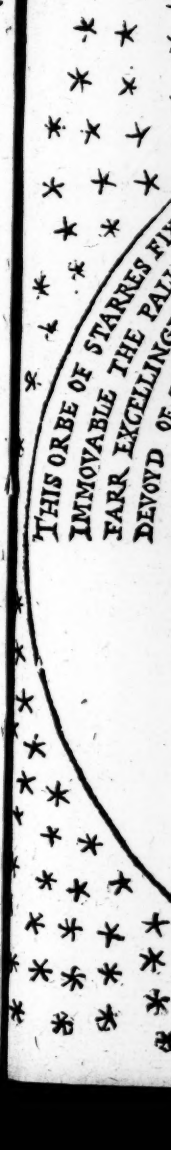
the thinne ayre onely with what proprietie which the wonderfull workeman hath giuen at the Creation to the Center of this Globe, with his magneticall force vehemently to draw and hale vnto it selfe all such other Elementall things as retayne the like nature. This ball euery 24. houres by naturall vniforme, and wonderfull slie & smooth motion rouleth round, making with his Period our natural day, wherby it seemes to vs that the huge infinite immoueable Globe should sway and turne about.

The Moone Orbe that enuironeth and contayneth this darke star, and the other mortal, changeable, corruptible Elements and Elementarie things, is also turned round euery 20. dayes, 31. Minutes, 50. seconds, 8. thirds, 9. fourths, and 20. fifes: and this Period maye most aptly be called the moneth. The rest of the Planets motions appeare by the Picture, and shall more largely be hereafter spoken of.

Herein good Reader, I haue waded farther then the vulgar sorte, *Demonstratiuè & Practicè*, and God sparing life I meane, though not as Iudge to decide, yet at the Mathematicall barre in this case to plead, in such sorte, as it shall manifestly appeare to the world, whether it bee possible vpon the Earths stabilitie to deliuer any true or probable Theorick, and then referre the pronouncing of sentence to the graue Senate of indifferent discreete Mathematicall Readers.

Farewell, and respect my trauailes as thou shalt see them tende to the aduancement of truth, and discouering the monstrous loathsome shape of error.

A Perfit



A plaine description of the Cœlestiall Orbes,

according to the most auncient doctrine of the Pythagoreans, &c.

A PERFIT DESCRIPTION of the Cœlestiall Orbes, according to the most ancient doctrine of the Pythagoreans: lately reuiued by Copernicus, and by Geometricall Demonstrations approued.

ALthough in this most excellent and difficile part of Philosophie in all times haue been sundrie opinions touching the situation and mouing of the bodies celestiall, yet in certaine principles, all Philosophers of any account of all ages haue agreed and consented. First that the Orbe of the fixed starrs is of all other the most high, the farthest distant, and comprehendeth the other Spheres of wandring starrs. And of these straying bodies called Planets, the olde Philosophers thought it a good ground in reason, that the nigheſt to the Centre should swiftliest moue, because the circle was least and thereby the sooner ouerpassed, and the farther distant, the more slowly. Therefore as the Moone being swiftest in course, is found also by measure nigheſt, so haue all agreed that the Orbe of ☽ being in mouing the slowest of all the Planets, is also the highest: ♃ the next, and then ♂: but of ☿ and ♀ there hath been great controuersie, because they stray not euery way from the Sunne, as the rest doe. And therefore some haue placed them aboue the Sunne, as Plato in his Timæo: others beneath, as Ptolomie, and the greater part of them that followed him. Alpetragius maketh ☿ aboue the Sunne, and ♀ beneath, and sundrie reasons haue been of all sides alleadged in defence of their opinions. They that follow Plato (supposing that all starres should haue obscure and darke bodies shining with borrowed light like the Moone) haue alleadged that if those Planets were lower then the Sunne, then should they sometime obscure some part of the bodie of the Sunne, and also shine, not with a light circular, but segmentarie,

and that variable as the Moone: which whē they see by experience at one time to happen, they conclude with Plato. On the contrarie part, such as will maintaine them beneath, frame a likelihood by reason of the large space betweene the Orbes of the ☉ and ☽. For the greatest distance of the ☽ is but 64. semidiameters of the earth: and to the highest of the Sunne are 1160. so that there remaineth betweene the ☽ and the ☉ 1905. semidiameters of the earth. And therefore that so huge a space should not remaine emptie, there they situate the Orbes of ☿ and ♀. And by the distance of their Absides, whereby they search the thicknes of their Orbes, they finde that they of all the rest best answere that situation, so as the lowest of Mercuries Orbe may reach downe almost to the highest of the Moones, and the top of ♀ to the inferiour part of ♀ sphere, which with his Absis should reach almost vnto the Sunne. For betweene the Absides of ☿ by their Theoricks, they supputate 177. semidiameters of the earth, and then the crassitude of ♀ Orbe, being 910. semidiametrs both very nigh supplie and fill the residue. They therefore will not confesse that these planets haue any obscuritie in their bodies like ☽ Moone, but that either with their owne proper light, or els being throughly pierced with solare beames, they shine and shew circulare. And hauing a straying course of latitude, they seldome passe betweene the Sun & vs: or if they should, their bodies being so small could scarcely hide the hundred part of the Sun, and so small a spot in so noble a light could hardly be discerned. And yet Auerrois in his Paraphrasis on Ptolomie affirmeth, that he sawe a little spot in the Sun at such time as by Calculation he had forecast a corporall Coniunction. But how weake this their reason is, it may soone appeare if we consider how from the earth to the lowest of the Moones Orbe there is 38. semidiameters of the earth, or by the truer computation according to Copernicus 52. And yet in all that so huge a space we know nothing but the ayre or firie Orbe, if any such be. Againe, the diameter of the circle wherby ☿ should be carried nigh 45. grades distant from the Sunne, must needes be sixe times greater at the least, then the distance of that circles lowest part from the Earth: then if that whole circle comprehended within the Orbe of ♀ should be turned about the earth, as needes it must, if wee will not attribute to the

earth

earth any motion, wee may easily consider what rule in the Heauens so vaste and huge an Epicicle, containing a space so many times greater then the earth, Aire, & Orbs of the Moone & ♀ also, will make: especially being turned round about the earth. Againe, the reason of Ptolomie, that the ☉ must needes bee placed in the middest of those Planets that wander from him at libertie, and those that are as it were combined to him, is proued senselesse by the motiõ of the Moone, whom we see no lesse to stray from the Sun, then any of those other three superiour Planets. But if they will needes haue these two Planets Orbes within an Orbe of the Sunne, what reason can they giue why they should not depart from the Sunne at large, as the other Planets do, considering the increase of swiftnes in their motiõ must accompanie the inferiour situation, or els the whole order of Theoricks should be disturbed? It is therefore euident, that either there must be some other Centre, whereunto the order of these Orbes should be referred, or else no reason in their order, nor cause apparant, why wee shoulde rather to ♄ then to ♃ or any of the rest attribute the higher or remoter Orbe. And therefore seemeth it worthie of consideration that Martianus Capella wrote in his Encyclopedia, and certaine other Latines held, affirming that ♀ and ☿ doe runne about the Sunne in their Spheres peculiar, and therefore could not stray farther from the ☉ then the capacitie of their Orbes would giue them leaue, because they encompasse not the earth as the others do, but haue their Absides after another manner conuerted. What other thing would they hereby signifie, but that the Orbes of these Planets should enuiron the Sunne as their Centre. So may the Sphere of ☿ being not of halfe the amplitude of ♀ Orbe, bee well situate within the same. And if in like sort we situate the Orbs of ♄, ♃ and ♂, referring them as it were to the same Centre so, as their capacitie bee such as they containe and circulate also the Earth, happily wee shall not erre, as by euident Demonstrations in the residue of Copernicus Reuolutions is demonstrate. For it is apparant that these Planets nigh the Sunne, are alwayes least, and farther distant, and opposite, and much greater in sight, and nigher to vs: wherby it cannot be, but the Centre of them is rather to the ☉, then to the earth to bee referred: as in the Orbes of ♀ & ☿

also

also. But if al these to the Sunne as to a Centre in this manner be referred, then must there needs betweene ꝑ conuexe Orbe of ♀ and the concaue of ♂ an huge space bee left, wherein the earth and Elementarie frame, inclosed with the Lunary Orbe, of duetie must be situate. For, from the earth the Moone may not be farre remoued, being without controuersie of all other nigheſt in place & nature to it: especially considering between the same Orbes of ♀ and ♂ there is roome sufficient. Therefore neede we not to be ashamed to confesse, this whole globe of Elements enclosed with ꝑ Mones sphere, together with the earth as the Centre of the same, to be by this great Orbe, together with the other Planets about the Sun turned, making by his reuolutiõ our yere. And whatsoeuer seeme to vs to proceede by the moning of the Sunne, the same to proceede indeed by the reuolution of the earth, the Sunne still remaining fixed and immoueable in the middest. And the distance of the earth from the Sunne to bee such, as being compared with the other Planets, maketh euident alterations, & diuersitie of aspects: but if it bee referred to the Orbe of starres fixed, then hath it no proportion sensible, but as a poynt or a Centre to a circumference, which I hold farre more reasonable to be granted, then to fall into such an infinite multitude of absurde imaginations, as they were faine to admit that will needes wilfully maintaine the earths stabilitie is the Centre of the world. But rather herein to direct our selues by that wisedome, we see in al Gods naturall works, where we may beholde one thing rather endued with many vertues and effects, then any superfluous or vnnecessarie part admitted. And al these things, although they seeme hard, strange, & incredible, yet to any reasonable man ꝑ hath his vnderstãding ripened with Mathematicall demonstration, Copernicus in his Reuolutions according to his promise hath made them more euident and cleere then the Sunne beames. These grounds therefore admitted, which no man reasonably can repugne, that the greater Orbe requireth the longer time to runne his Period: the orderly and most beautifull frame of the heauens doth ensue. The first and highest of all is the immoueable sphere of fixed starres, containing it self & al the rest, and therefore fixed: as the place vniuersall of rest, whereunto the motions and positions of all inferiour spheres are to be cõpared.

For

For albeit sundrie Astrologians finding alterations in the declination and longitude of Starres, haue thought that the same also should haue his motion peculiar: yet Copernicus by the motions of the Earth saluеth all, and vtterly cutteth off the ninth and tenth spheres, which contrarie to all sence the maintainers of the earths stabilitie haue been compelled to imagine.

The first of the moueable Orbes is that of ♄, which being of all other next vnto the infinite Orbe immoueable, garnished with lights innumerable, is also in his course most slow, and once onely in thirtie yeares passeth his Period.

The second is ♃, who in 12. yeares performeth his circuite.

Mars in two yeares runneth his circular race.

Then followeth the great Orbe, wherein the Globe of mortalitie inclosed in the Moones Orbe as an Epicicle, and holding the earth as a Centre by his owne waight resting alway permanent in the middest of the ayre, is carried round once in a yeare.

In the fift place is ♀, making her reuolution in 9. moneths.

In the sixt is ☿, who passeth his circuit in 80. dayes.

In the middest of all is the Sunne.

For in so stately a Temple as this, who would desire to set his lampe in any other better or more conuenient place then this, from whence vniformely it might distribute light to all: for not vnfitly it is of some called the lampe or light of the worlde, of others the mind, of others the Ruler of the world.

Ad cuius numeros & dij moueantur, & Orbes
Accipiant leges, præscriptáque fœdera seruent.

Trismegistus calleth him the visible God. Thus doth the Sun like a King sitting in his throne, gouerne his Courtes of infe-

riour powers: neither is the Earth defrauded of the ſeruice of the Moone: but Ariſtotle ſayth, of all other the Moone with the Earth hath nigheſt alliaunce, ſo heere are they matched accordingly.

In this fourme or frame may wee beholde ſuch a wonderfull Symmetry of motions and ſituations, as in no other can bee propoſed. The times whereby wee the inhabitants of the Earth are directed, are conſtituted by the reuolutions of the Earth: the circulation of her Centre cauſeth the yeare, the conuerſion of her circumference maketh the naturall day, and the reuolution of the ☽ produceth the moneth. By the onely view of this Theoricke, the cauſe and reaſon is apparant, why in ♃ the progreſſions and Retrogradations are greater then in ♄, & leſſe then in ♂, why alſo in ☿ they are more then in ♀: and why ſuch chaunges from direct to retrograde Stationarie, &c. happeneth, notwithſtanding more rifely in ♄ then in ♃, and yet more rarely in ♂: why in ☿ not ſo commonly as in ♀. Alſo why ♃ and ♂ are nigher the Earth in their Acronicall, then in their Coſmicall or Heliacall riſing: eſpeciallie ♂, who riſing at the Sunne ſet, ſheweth in his ruddie fierie colour equall in quantitie with Iupiter, and contrariwiſe ſetting little after the Sunne, is ſcarcely to bee diſcerned from a Starre of the ſecond light. All which alterations apparantly followe vpon the Earths motion. And that none of theſe doe happen in the fixed Starres, it plainly argueth this huge diſtance and immeaſurable altitude, in reſpect whereof this great Orbe, wherein the Earth is carried, is but a poynt, and vtterly without ſenſible proportion, being compared to that Heauen. For as it is in perſpectiue demonſtrate: euery quantitie hath a certaine proportionable diſtance whereunto it may be diſcerned, and beyond the ſame it may not be ſeene. This diſtance therefore of the immoueable Heauen is ſo exceeding great, that the whole Orbis magnus banisheth away, if it be conferred to that Heauen.

Herein can wee neuer ſufficiently admire this wonderfull and incomprehenſible huge frame of Gods worke proponed to our ſenſes, ſeeing firſt this ball of the Earth wherein we moue, to the common ſort ſeemeth great, and that in reſpect of the Moones Orbe is very ſmall, but compared with Orbis magnus where-

in

in it is carried, it scarcely retaineth any sensible proportion: so marueilously is that Orbe of annuall motion greater then this little darke Starre wherein wee liue. But that Orbis magnus, being (as is before declared) but as a poynt in respect of the immensitie of the immoueable Heauen, we may easily consider what little portion of Gods frame our Elementare corruptible world is, but neuer sufficiently be able to admire the immensitie of the rest: especially of that fired Orbe garnished with lights innumerable, and reaching vp in Sphericall Altitude without ende. Of which lights Celestiall it is to be thought, that wee onely behold such as are in the inferiour parts of the same Orbe: as they are higher, so seeme they of lesse and lesser quantitie, euen till our sight, being not able farther to reach or conceiue the greatest part of the rest, by reason of their wonderfull distance inuisible vnto vs. And this may well bee thought of vs to bee the glorious Court of the great God, whose vnsearchable workes inuisible we may partly by these his visible, coniecture: to whose infinite power and Maiestie, such an infinite place surmounting all other both in quantitie and qualitie only is conuenient. But because the world hath so long a time beene carried with an opinion of the Earths stabilitie, as the contrarie cannot but bee now very imperswasible, I haue thought good out of Copernicus also, to giue a taste of Reasons Philosophicall alleaged for the Earths stabilitie, and their solutions: that such as are not able with Geometricall eyes to beholde the secret perfection of Copernicus Theoricke, may yet by these familiar and naturall reasons be induced to search farther, and not rashly to condemne for phantasticall, so ancient doctrine reuiued, and by Copernicus so demonstratiuely approued.

What reasons moued Aristotle, and others that followed him, to thinke the earth to rest immoueable as a Centre to the whole world.

The most effectuall reasons that they produce to proone the Earths stabilitie in the middle or lowest part of the world,

is that of Grauitie and Leuitie. For of all other the Element of the earth (say they) is most heauie, and all ponderous things are carried vnto it, striuing (as it were) to swape euen downe to the inmost part thereof. For the earth being round, into the which all waightie things on euery side fall, making right angles on the superficies, passe to the Centre, seeing euerie right line that falleth perpendicularly vpon the Horizon in that place where it toucheth the earth, must needs passe by the Centre. And those things that are carried towarde that Medium, it is likely that there also they would rest. So much therefore the rather shall the earth rest in the middle, and (receiuing all things into it selfe that fall) by his owne waight shall bee most immoueable. Againe, they seeke to prooue it by reason of motion and his nature: for of one and the same simple bodie, the motion must also bee simple, sayth Aristotle. Of simple motions there are two kindes, Right and Circular: Right are either vp or downe: so that euery simple motion is either downward toward the Centre, or vpward from the Centre, or Circular about the Centre. Now vnto the earth and water in respect of their waight, the motion downward is conuenient to seeke the Centre: to Ayre & Fire in regard of their lightnesse, vpward and from the Centre. So is it meete to these Elements to attribute the right or straight motion, and to the Heauens onely it is proper circularly about this meane or Centre to be turned round. Thus much Aristotle. If therefore (sayth Ptolemie of Alexandria) the Earth should turne but onely by that daily motion, thinges quite contrarie to these should happen. For his motion should bee most swift and violent, that in 24. houres should let passe the whole circuit of the Earth: and those things which by sudden turning are stirred, are altogether vnmeet to collect, but rather to disperse things vnited, vnles they should by some firme fastning be kept together. And long ere this, the Earth being dissolued in peeces, should haue bin scattered through the Heauens, which were a mockerie to thinke of: and much more, beasts, and all other waights that are loose could not remaine vnshaken. And also things falling should not light on the places perpendicular vnder them, neither should they fall directly thereto, the same being violently in the meanewhile carried away. Clouds also and

other

other things hanging in the Ayre should alwaies seeme to vs to be carried toward the West.

The solution of these Reasons, with their insufficiencie.

THese are the causes, and such other, wherewith they approue the Earth to rest in the middle of the world, and that out of all question. But hee that will maintaine the Earths mobilitie, may say that this motion is not violent but naturall. And these thinges which are naturally mooued haue effects contrarie to such as are violently carried. For such motions wherein force and violence is vsed, must needes bee dissolued, and cannot bee of long continuance: but those which by nature are caused, remaine still in their perfite estate, and are conserued and kept in their most excellent constitution. Without cause therefore did Ptolemie feare least the Earth, and all earthly things should be torne in pieces by this Reuolution of the Earth, caused by the working of Nature, whose operations are farre different from those of Arte, or such as humaine intelligence may reach vnto. But why should hee not much more thinke and mistrust the same of the worlde, whose motion must of necessitie bee so much more swift and vehement then this of the Earth, as the Heauen is greater then the Earth. Is therefore the Heauen made so huge in quantitie that it might with vnspeakeable vehemencie of motion bee seuered from the Centre, least happily resting it should fall, as some Philosophers haue affirmed? Surely, if this reason should take place, the magnitude of the Heauen should infinitly extend. For the more this motion should violently bee carried higher, the greater should the swiftnesse be, by reason of the increasing of the circumference, which must of necessitie in 24. houres be past ouer, and in like manner by increase of the motion, the Magnitude must also necessarily bee augmented: thus should the swiftnesse increase Magnitude, and the Magnitude the swiftnesse infinitly. But according to that ground of nature: whatsoeuer is infinite can neuer be passed ouer. The Heauen therefore of necessity must stand & rest fixed. But say they, without the Heauen there is no body, no place,

no emptineſſe, no not any thing at all whether heauen ſhould or could farther extend. But this ſurely is very ſtraunge, that nothing ſhould haue ſuch efficient power to reſtraine ſome thing, the ſame hauing a very eſſence and being. Yet if wee would thus confeſſe that the Heauen were indeed infinite vpward, and onely finite downward in reſpect of his ſpheriall concauitie: much more perhaps might that ſaying bee verified, that without the Heauen is nothing, ſeeing euery thing in reſpect of the infiniteneſſe thereof had place ſufficient within the ſame. But then muſt it of neceſſitie remaine immoueable. For the chiefeſt reaſon that hath mooued ſome to thinke the Heauen limitted, was Motion, which they thought without controuerſie to bee indeede in it. But whether the worlde haue his bounds, or bee indeede infinite and without bounds, let vs leaue that to bee diſcuſſed of Philoſophers: ſure we are that the Earth is not infinite, but hath a circumference limitted. Seeing therefore all Philoſophers conſent the limitted bodies may haue motion, and infinite cannot haue any: why doe we yet ſtagger to confeſſe motion in the Earth, being moſt agreeable to his forme and nature, whoſe bounds alſo and circumference wee knowe, rather then to imagine that the whole worlde ſhould ſway and turne, whoſe ende wee knowe not, ne poſſiblie can of any mortall man be knowne? And therefore the true motion indeede to be in the Earth, and the apparance onely in the Heauen: and that theſe apparances are not otherwiſe then if the Virgilian AEneas ſhould ſay:

Prouehimur portu, terræq; vrbeſq; recedunt.

FOr a ſhip carried in a ſmooth Sea with ſuch tranquillitie doth paſſe away, that all things on the ſhores and the Seas, to the ſaylers ſeeme to moue, and themſelues onely quietly to reſt with all ſuch things as are abooard with them: ſo ſurely may it be in the Earth, whoſe motion being naturall and not forcible, of all other is moſt vniforme and vnperceiueable, whereby to vs that ſayle therein, the whole worlde may ſeeme to roule about. But what ſhall we then ſay of Clowdes and other things hanging or reſting

in

in the ayre, or tending vpward, but that not onely the Earth & sea making one Globe, but also no small part of the ayre is likewise circularly carried, & in like sort al such things as are derived from them, or haue any manner of alliance with them: either for that the lower Region of the ayre being mixt with earthly and watrie vapours, followe the same nature of the Earth: either that it bee gained and gotten from the Earth by reason of Vicinitie, or Contignitie. Which if any man maruaile at, let him consider how the olde Philosophers did yeeld the same reason for the Reuolution of the highest Region of the ayre, wherein wee may sometime beholde Comets carried circularly no otherwise then the bodies Celestiall seeme to bee, and yet hath that Region of the ayre lesse conuenience with the Orbes Celestiall then this lowe part with the Earth. But we affirme that part of the ayre in respect of this great distance to be destitute of this motiõ terrestriall, & that this part of the ayre that is next to the Earth dooth appeare most still and quiet, by reason of his vniforme naturall accompanying of the Earth, and likewise things that hang therein, vnlesse by windes or other violent accident they bee tossed to and fro. For the winde in the ayre is nothing els but as waues in the Sea. And of things ascending and descending in respect of the world wee must confesse them to haue a mixt motion of right and circular, albeit it seeme to vs right and straight, not otherwise then if in a ship vnder sayle a man should softly let a plummet down from the top along by the mast euen to the deck: this plummet passing alwayes by ẏ straight mast, seemeth also to fall in a right line, but being by discourse of reason weyed, his motion is found mixt of right and circular. For such things as naturally fall downward, being of earthly nature, there is no doubt but as parts they retaine the nature of ẏ whole. No otherwise is it to these things that by fiery force are caried vpward. For ẏ earthly fire is chiefly nourished with earthly matter: and flame is defined to be naught els but burning fume or smoke, & that the propertie of fire is to extend the subiect wherinto it entereth, the which it doth with so great violence, as by no meanes or engines it can bee constrayned, but that with breach of bands it will perfourme his nature. This motion extensiue is from the Centre to the circumference: so that if any earthly part bee

fierce,

ſtered, it is carried violently vpwarde. Therefore whereas they ſay, that of ſimple bodies the motion is altogether ſimple, of the circular it is chiefly verified ſo long as the ſimple bodie remayneth in his naturall place, and perfite vnitie of compoſition: for in the ſame place there can bee no other motion but circular, which remayning wholy in it ſelfe, is moſt like to reſt an immobilitie. But right or ſtraight motion onely happen to thoſe things that ſtray and wander, or by any meanes are thruſt out of their naturall place. But nothing can bee more repugnant to the forme and ordinance of the worlde, then that thinges naturally ſhould be out of their naturall place. This kinde of motion therefore that is by right line, is onely accident to thoſe things that are not in their right ſtate or perfection naturall, while parts are diſioyned from their whole bodie, and couet to returne to the vnitie thereof againe. Neither doe theſe things which are carried vpwarde or downewarde beſides this circular mooving make any ſimple vniforme, or equall motion, for which their leuitie or ponderoſitie of their bodie, they cannot bee tempered, but alwayes as they fall (beginning ſlowly) they increaſe their motion, and the further the more ſwiftly, whereas contrariwiſe this our earthly fire (for other wee cannot ſee) wee may beholde as it is carried vpwarde to baniſh and decay, as it were confeſſing the cauſe of violence to proceede onely from his matter terreſtriall. The circular motion alway continueth vniforme and equal, by reaſon of his cauſe which is indeficient and alway continuing. But the other haſteneth to ende and to attaine that place where they leaue longer to bee heauie or light, and hauing attained that place, their motion ceaſeth. Seeing therefore this circular motion is proper to the whole, as ſtraight is onely vnto parts, wee may ſay that circular dooth reſt with ſtraight, as animal cum ægro. And whereas Ariſtotle hath diſtributed ſimplicem motum into theſe three kindes, A medio ad medium, and circa medium, it muſt bee onely in reaſon, and imagination, as wee likewiſe ſeuer in conſideration Geometricall, a poynt, a line, and a ſuperficies, whereas in deede neither can ſtande without other, ne any of them without a bodie.

Hereto wee may adioyne, that the condition of immobilitie is more

more noble and diuine then that of chaunge, alteration, or instabilitie: and therefore more agreeable to Heauen then to this Earth, where all things are subiect to continuall mutabilitie. And seeing by euident proofe of Geometricall mensuration, wee finde that the Planets are sometimes nigher to vs, & sometimes more remote, and that therefore euen the maintainers of the Earths stabilitie, are enforced to confesse, that the earth is not their Orbes Center, this motion circa Medium, must in more generall sort bee taken, and that it may bee vnderstand that euery Orbe hath his peculiar Medium and Centre, in regard whereof this simple and vniforme motion is to be considered. Seeing therfore that these Orbs haue seuerall Centres, it may bee doubted whether the Centre of this earthly grauitie, be also the Centre of the world. For grauitie is nothing else but a certaine procliuity or naturall coueting of parts to be coupled with the whole: which by diuine prouidence of the Creator of all, is giuen and impressed into the parts, that they should restore themselues into their vnitie and integritie, concurting in Sphericall forme. Which kind of proprietie or affection, it is likely also that the Moone and other glorious bodies want not, to knit and combine their parts together: and to maintaine them in their round shape, which bodies notwithstanding are by sundrie motions, sundrie wayes conueied. Thus as it is apparant by these naturall reasons, that the mobilitie of the Earth is more probable and likely then the stabilitie: so if it be Mathematically considered, and Geometricall mensurations euery part of euery Theoricke examined: the discreete student shall finde, that Copernicus, not without great reason die propone this ground of the Earths mobilitie.

The Addition.

A short discourse touching the variation of the Compasse.

MArueilous (no doubt) is that naturall proprietie of the Magnes, whereby the needle touched immediatly turneth to some one certaine point of the heauens, and after sundry motions hither and thither, findeth rest onely in one place & poynt. And albeit this poynt in seuerall Horizons be different, yet in any one Horizon it remaineth alway permanent, and therfore it plainly appeareth that the same proceedeth of some constant permanent cause naturall, and not of any mutable vncertaine cause accidentall. But what this cause should bee, no man hitherto hath truely discouered. To omit apparant absurd opinions, the most probable of those that haue been giuen and generally best allowed, is the poynt Attractiue, which should bee of such vertue, as to draw the needle touched alway toward the same poynt: but whether this point should bee in the heauens or earth, is another controuersie. Such as will haue it in the earth, affirme it to bee a huge mountaine or rocke of Magnes stone, distant from the Pole certaine grades, which drawing the needle to it selfe, auoides causeth it to make an angle of variation from the Pole of the world, saue onely vnder the Meridian that passeth by the same Attractiue poynt. But the error of this opinion will some be found of them that shal vpon this supposition, and two different angles of variation, search out the place of that poynt Attractiue, (the same being in that Intersection of the two Circles of position by the variations determined) and then conferre that with some third angle of variation, whereby it shall plainly appeare that in the earth no such one Attractiue point cā be imagined, as shal by circle of opposition produce such variations as in Nauigation haue been discouered. And to place this poynt Attractiue in any of the heauens, it would appeare more absurd. For whether the Heauens mooue, and the Earth rest immoueable, or the Earth mooue, and the great Orbe of Starres be permanent, as of necessitie the one or the other must be true (considering a motion is apparant) it must necessarily follow, that his alteration should be in continuall alteration euery houre and moment

ment of the day: but by experience we find the contrary, and therefore may necessarily bee inferred, no such Attractiue point in that Heauen. So that hauing found by these trials this imagination of a point Attractiue, and such instruments as haue been vpon that ground deuised, but meere vanities, I haue somewhat further sought. And among sundrie imaginations that I haue Mathematically handled, I thinke it is not amisse to propone one to be considered, weied and examined by exquisite triall of Geometricall demonstration, and Arithmeticall calculation: for it is no question for grosse Mariners to meddle with, no more then the finding of the Longitude. And therefore I cannot a little wonder at the blind boldnes of Sebastian Cabotto, and some others, that being ignorant both in Geometricall demonstration, and Arithmeticall Symicall calculations, haue natheless tane vpon them in these most difficile questiõs to promise resolution, being no more able or likely to performe it, then an Oxe to flie betweu two mountaine tops. Those sciences being the only wings to eleuate our grosse senses to matter so high and mysticall, let such content themselues with the praise of painfull, hard, farre trauelled mariners, and for their new discoueries let them learne Apelles lesson: Ne sutor vltra crepidam. Of these two Problemes thus much I promise for the inuention of the Longitude, I will (God sparing life) deliuer meanes as exact certaine, and feasible, at all times of the yeare in what plane soeuer, as by Eclipses. And for the other if I deliuer not the like, at the least so farre I will wade therein, that such blind boldnesse knowing somewhat more their owne imperfection, shall in such mysteries vse more modestie.

An Hypothesis or supposed cause of the variation of the Compasse, to be Mathematically weied.

AS the Axis of the Earth, notwithstanding all other motions, remaineth as it were immoueable, and yet in respect of the sphericall fourme of the Earth in euery seuerall Horizon maketh a seuerall line Meridionall, by reason of the section made in the superficies of the Horizons by Meridians, hauing all that Axis as their common diametre, so

may it alſo come to paſſe of the line of the needle and his variation, the needle being alway permanent in one plaine ſuperficies according to the ſeuerall ſection of the plaine wherein it reſteth, and the Horizon there may bee continually made, in euery plaine new variations. More plainely to open this imagination, thus I ſay: that as in a payre of ballance of equall waight there is a certaine motion to and fro before they finde their true place of reſt (the ſame being only in the leuell of the Horizon) which cõmeth to paſſe as Copernicus affirmeth, by the attractiue Centre of the Earth, who drawing vnto him either waight with like force, finding the ſubiects like alſo, compelleth them to reſt in the ſuperficies like diſtant from that Attractiue Centre: ſo in the needle being a body endued with two ſeuerall properties, the one of Grauitie and Leuitie, which being equally poyzed, forceth him to abide in the Horizon: the other being Magneticall and receiued by the touch, which cauſeth him to reſt alway in that one Meridian, to the Magnes appropriate, it thereby commeth to paſſe, that after ſundry ballancing this way and that way, ſtonely reſteth in the common ſection of this peculiar Meridian and the Horizon. So that euen as in Dyals the line of the ſtile onely accordeth and concurreth with the Meridian line, in ſuch as are voyd of declination, but in all ſuch playnes as are declinatorie, the line of the ſtile varieth from the Meridian line, and the ſame angle of variation alſo altereth as well in reſpect of inclination as declination: ſo I ſuppoſe this variation of the compaſſe to be nothing els but the angle comprehended betweene the Meridian line, and the common ſection of the magneticall Meridian and the Horizon in the Horizontall plaine, and this Angle to bee alwayes exactly equall to the Angle contayned of the Meridian line, and line of the ſtile: The Longitude of the place propoſed accounted from the Magneticall Meridian, being equall to the declination of the Dyals playne ſuperficies, making computation from South to Eaſt Cyrculerly, and the Latitude of the place equall to the complement of the inclination of the ſame ſuperficies Horologiall. Of the verity of this ſuppoſition I could eaſily determine, if there were any truſt to the obſeruation of Mariners: but hauing found by experience their groſſe vſage and homely inſtruments, where halfe a poynt com-

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monly breaketh no square: and also their repugnant tales that haue trauayled the verie selfe same Voyages, I cannot yet resolue.

VPon due examination of this Hypothesis there may happily fall out a strange Paradox, not thought of hitherto, that these vulgare maryne Chartes delineate with Parallele Meridians, and right lined Rumbie, being of themselues apparantly false and erronious, yet vsed without rectification of the compasse: may bring foorth true effects, and so two errours concurring produce a veritie.

Errors in the Arte of Nauigation commonly practised.

FIrst, all their Chartes are described with straight Meridian lines running equidistant or Parallele, which errour is most manifest to any that haue tasted but the first principles of Cosmographie, considering they are all great circles, and concurre in the Poles.

SEcondly, they suppose that running vpon any of their poynts of their Compasse, they should passe in the Circumference of a great circle, & therefore in the plaine Charte describe those winds with straight lines: but therein are they greatly abused, for the Shippe steming the North and the South, onely maketh her course in a great Circle: East or West she describeth a Parallele, and being stirred on any other meane poynt, (the Compasse being truely rectified) shee delineateth in her course a Curue or Helicall line, neither straight nor Cirrular, but mixt of both: and therefore to set foorth these windes in the Chartes with straight lines is most erronious.

THirdly, their rule to know Latitude by the Pole starre, adding or substracting from his Altitude according to the situation of the Grades, is all falle, and that worst is, cannot bee amended:

but be it neuer so well rectified to one climme, yet is it falſe in all other.

FOurthly, their taking of the Sunne with their Baliſtile (as they terme it) is moſt falſe; and whereas ſome finding the errour thereof, haue gone about to remedie the ſame by cutting off a part at the ende, thinking thereby it might approch to the Centre of the eye, they encreaſe thereby the errour, and make it more falſe. For viſus non fit à puncto, as they ſuppoſe. And this error is much like the other of the Pole Starre ſituation of the guards: for be it neuer ſo well corrected by ſection to any one Altitude, then ſhall it bee falſe for all other, as to any ſkilfull in Perſpectiue it is eaſily demonſtrate.

This errour I haue alreadie reformed, Demonſtratiuè, & Practicè in my booke lately publiſhed, entituled Alæ ſeu Scalæ Mathematicæ.

Alſo the rules they haue to know how many leagues they ſhall runne vpon euery poynt to raiſe one degree in Latitude, are alſo meere falſe. For they ſearch that Arcke Itinerall as though it were the Hypothenuſa to a right angled triãgle, whoſe ſides are circles of contrary nature, the one a Parallele, the other a great circle, and therefore without all ſence ſeeke they by proportion of right lines to deliuer their quantitie.

But beſides theſe errours, they haue one great imperfection yet in their arte, and hitherto by no man ſupplied, and that is the want of exact Rules to know the Longitude of Arckes Itinerall, Eaſt and Weſt, without the which they can neither truely giue the place or ſituation of any coaſt, Harborough, Rode or Towne, ne yet in ſayling, diſcerne how the place they ſayle vnto beareth from them, or how farre it is diſtant, whereby they are enforced long before they come at any Coaſt, all night to ſtrike ſayle, no other wayes then if they were vpon it, thereby looſing the benefite of proſperous winds, in ſuch ſort ſometime, that whereas keeping a true courſe they might haue been quietly at Roade, they are

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by contrary and aduerſe tempeſts carried farre off, and ſo not without great charge to the owner, paine to the companie, and perill to the veſſell, are enforced to waſt their time, which groweth of their ignorance, that they neither haue true Rules to direct themſelues the nigheſt courſe, ne yet treading their beaten paths can aſſuredly decide of their certaine place. For reformation of theſe errors & imperfections, new Chartes, new Inſtruments, and new Rules muſt be preſcribed. Wherein I haue prepared in a peculiar volume for that purpoſe to entreate, wiſhing in the meane time that ſuch as are not able to reforme theſe faults, will abſtaine to teach our Countrey-men moe errours.

FINIS.